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ABSTRACT

This book provides classroom teachers at every grade level and subject the tools and background to effectively work with standards as a guide in their planning. It explains the process by which educators can rearticulate state standards and align the locally rearticulated standards to their curriculum and student performance. Six chapters include: (1) "Student Achievement Using a Holistic Approach to Standards" (e.g., best practices and consensus for standards); (2) "The Need for Dialogue" (e.g., communicating consensus and stakeholders as team members); (3) "The Language of Expectation" (e.g., the need for a common language and constructing a verb matrix); (4) "Designing and Using the Standards-Based Curriculum" (e.g., writing criterion standards and standards-based instructional plan); (5) "Instructional Plans Based on Criterion Standards" (foreign language, language arts, mathematics, science, and social science); and (6) "Lesson Planning Takes Root" (e.g., integrating the curriculum and the planned course document). Two appendixes offer relevant Web sites and verb matrix survey material. (Contains 70 bibliographic references.) (SM)

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ALIGNING STANDARDS AND CURRICULUM

for Classroom Success

DANIEL M. PERNA &
JAMES R. DAVIS

Foreword by
Willard R. Daggett

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Aligning Standards and Curriculum

for Classroom Success

Daniel M. Perna
James R. Davis

Arlington Heights, Illinois

Aligning Standards and Curriculum for Classroom Success

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info@skylightedu.com
http://www.skylightedu.com

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Senior Acquisitions Editor: Jean Ward
Project Coordinators: Amy Kinsman, Donna Ramirez
Editor: Peggy Kulling
Copyeditor: Daniel Greene
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Foreword

Across the United States, education is in the midst of a movement to raise standards for all students. Although intended to bring structure and clarity to school curricula, the new standards and related assessments that have been put into place are often doing just the opposite. Teachers report feeling overwhelmed by the numerous and sometimes conflicting standards they are held responsible for teaching and by the various assessments upon which their performance and that of their students are judged.

The International Center for Leadership in Education was founded in 1991 on the belief that what students need to succeed in the twenty-first century is an education that is both rigorous and relevant. Today, the Center is even more convinced of the validity of that belief.

Research by the International Center, the Third International Mathematics and Science Study (TIMSS), and the Mid-continent Regional Educational Laboratory (McREL) has found the typical curriculum in the United States to be loaded with far more content than teachers can reasonably be expected to cover. The extensive number of topics to be taught leaves little time to show students how what they are learning is relevant to the world beyond school. As a result, students are not developing the process skills to apply their knowledge to real-world situations and to succeed in today's workplace.

To cope with the overcrowded curriculum, schools need a way to identify educational priorities, a process to translate standards statements into effective teaching and learning, and a continuum of relevant

and interdisciplinary instruction that teaches students how to use the skills and knowledge they are acquiring. In *Aligning Standards and Curriculum for Classroom Success*, Daniel Perna and James Davis have developed a valuable resource for teachers: a systematic approach to developing curriculum within the framework of standards. The book helps teachers identify priorities and answer the question: What's important to teach, and how is it relevant to students and their futures? Numerous model lessons are included that can be used to assess standards. The authors also show how their methods can be used with student assessments and teacher evaluation.

Classroom teachers hold the key to preparing students both for the next level of education and for life. This book can help them do it.

Willard R. Daggett, Ed.D., President
International Center for Leadership in Education
March 2000

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Introduction

On the Right Track

Achieving standards should be thought of as the common destination for *all* students. Aligning standards to classroom practice takes time, practice, and the exercise of professional leadership and judgment. Together with members of the community, educators can construct the track on which students can travel to reach graduation and continue to learn throughout their lifetimes. If teachers are not willing or able to use standards to implement instruction, students run the risk of not meeting benchmarks, putting them behind schedule or off the track completely from achieving the standards.

Much has been written and said about standards but few have attempted to show how a standards-based curriculum can be developed and implemented in the classroom. This book tries to provide classroom teachers at any grade level and any subject with the tools and background to work with standards as the guiding force in their planning and course design. One of the best tools teachers can use is dialogue. This book offers a structured yet adjustable way to communicate both about standards and about what students should know and be able to do. The focus is on what students know and can do as a result of instruction, not on what the teacher will do or "cover."

Curriculum and instructional processes that educators develop through the use of this book will allow them to become and remain current

in their practices. The process strikes a good balance that allows educators to design a curriculum that is unique to their school district yet does not seek to reinvent the wheel. Educators will not need to start from scratch in the curriculum writing process; yet, the product will always remain relevant through constant updating and refining. Curriculum documents developed using the process explained in this book will be useful in the daily instruction.

As students travel through their school careers, they are supposed to be learning things that will help them become self-sufficient adults. Graduation standards as developed by most states, professional organizations, or local districts are the statements used to define what students should know and be able to do by the time they have completed high school so that they may be prepared for their next step in life. To achieve conventional standards, milestones—known as benchmarks—are established that students must accomplish in order to demonstrate that they are proceeding along the right track toward the achievement of graduation standards. Smaller or discrete units of accomplishment at levels leading up to the benchmarks are called criterion standards. These criterion standards can be used to track student progress toward the ultimate goal of attaining the graduation standard.

Aligning Standards and Curriculum for Classroom Success is presented in six chapters.

Chapter 1: Student Achievement Using a Holistic Approach to Standards defines standards and discusses the growing momentum and rationale behind the standards movement.

Chapter 2: The Need for Dialogue explores the necessity for dialogue between all stakeholders in the education process. Mandated state graduation standards have provided the impetus for discussion and dialogue between and among educators and non-educators about what students should know and be able to do. This chapter introduces the CAST (Communicating About Students and Teaching) Dialogue Process by which individuals can come to a consensus and begin to work together as partners in education.

Chapter 3: The Language of Expectation describes how a common language can be developed so that stakeholders can come to common understandings through the use of a Verb Matrix.

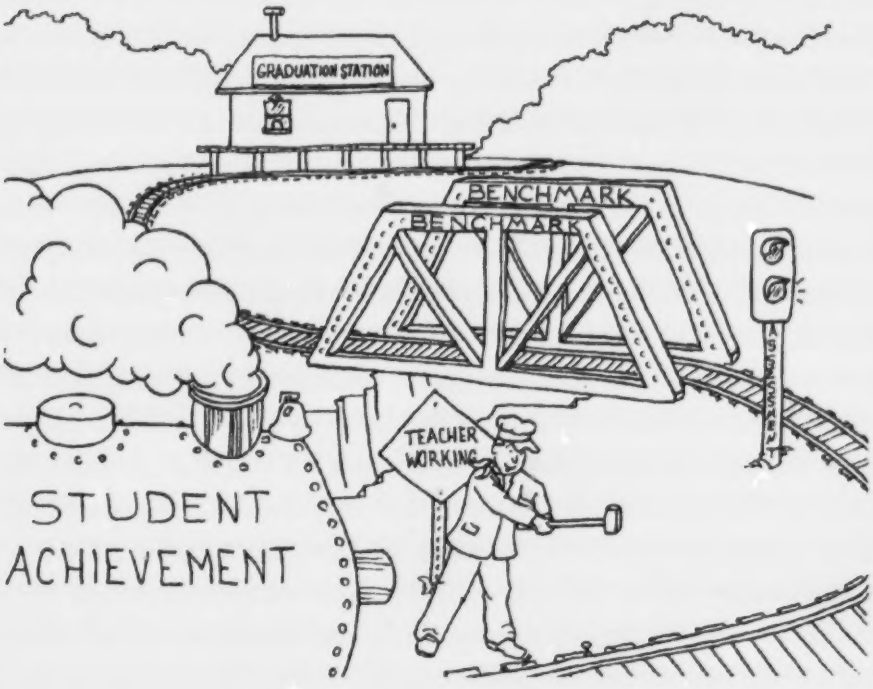
Chapter 4: Designing and Using the Standards-Based Curriculum gives a step-by-step description of how state graduation standards may be translated into distinct elements—criterion standards. The chapter presents permutations of the criterion standard and how it can be used as a tool to unlock the power of standards.

Chapter 5: Instructional Plans Based on Criterion Standards offers fourteen more fully conceived lesson plans that begin with standards in mind. These lesson plans are offered as a reminder that student achievement cannot be fully judged by a single event but rather by a series of opportunities for students to demonstrate what they know and can do.

Chapter 6: Lesson Planning Takes Root offers a number of strategies for using standards to integrate the curriculum. The chapter advocates the use of the planned course document as a means for teachers to evidence their use of standards in their classroom practice. Summing up the sample standards-based instructional plans offered in the preceding chapters, chapter six gives teachers specific ways they can develop their own standards-based plans for use in their classrooms.

In addition, an Appendix A: Relevant Web Sites related to standards and curriculum is included, and Appendix B: Verb Matrix includes survey materials for creating a verb matrix.

Aligning Standards and Curriculum for Classroom Success recognizes that standards are here to stay and that using standards as the stimulus and measurement of student achievement is a positive force in educational reform.



Chapter 1

Student Achievement Using a Holistic Approach to Standards

For many years the curriculum in schools has been so loosely outlined that many individual teachers have established their own *ad hoc* curriculum, defining within their own classrooms what students are supposed to know and be able to do. Such an approach has obvious repercussions. When curriculum is aligned to preference rather than a mutually agreed upon set of goals, one classroom of students may be prepared for their next level of study while another classroom at the same level in the same school may not be. A systematic approach to developing curriculum within the framework of standards will diminish the chances of a having a preference-based, haphazard curriculum, promote greater professional accountability, and support and enhance student achievement.

What Are Standards?

What standards are and what standards should be are often two different things. Standards *should be* specific statements of what students are supposed to know and be able to do. They should be explicit goals that ensure that rigorous academic content is taught in school. A stan-

dard must have a quantified or qualified characteristic that informs those teaching or learning the standard what is to be done to achieve the standard. Standards can involve one specific statement defining what a student must do to achieve it (see Figure 1.1), or it can involve a series of descriptive statements that defines what the student must do to achieve the level of competence expected in the standard (see Figure 1.2).

Figure 1.1 STANDARDS AS A SPECIFIC STATEMENT

Standard: Determine the perimeter of a given polygon.

Figure 1.2 STANDARD AS A SERIES OF DESCRIPTIVE STATEMENTS

Standard: Read and understand essential content of information texts and documents in all academic areas.

Descriptive Statements:
Utilize discussion, webbing, and responding to visuals to interpret texts.
Demonstrate how to gather information while reading.
Identify essential information to the meaning of the text.
Identify the facts in the material.
Offer answers to questions about the text.
Evaluate the accuracy of the material.

Ultimately, a standard should be a written statement, or a series of statements, that addresses one or more of the following:

- the level of cognitive difficulty at which a student must perform,
- the number of times a student must perform at a specified level,
- the time frame in which a student must perform at a specified level, and
- the level of teacher expectation for the performance.

The best way to align curricular objectives in terms of standards is to define the standards in terms of student performance. Perhaps the best way to do this is to render the expectations as *criterion standards.* A criterion standard is a statement listing one expectation of knowledge or perfor-

mance that a student should accomplish in order to demonstrate partial achievement of a standard. The use of criterion standards recognizes that content and performance standards are two sides of the same coin and should not be thought of as separate. A standard-based curriculum could be a listing of these criterion standards. The standards on the list would reflect both the student performance expectation and the teacher content to be delivered.

A grade-by-grade articulation of criterion standards removes the misconception that only teachers at the grade level in which state testing takes place are responsible to meet standards. Such misconceptions are more often than not institutionalized. Teaching to textbooks and the isolation imposed by the closed-door classroom are among the factors that contribute to misconceptions. A composite view of learning is needed in which teachers at all levels function as team members, each making sure their respective piece of the puzzle of learning is in place at the appropriate time. A vertical awareness by teachers of the standards and their benchmarks from kindergarten through post-twelfth grade is imperative.

It should also be mentioned that higher-order thinking is not solely the domain of the upper grades. Application, analysis, and evaluation can and should take place at the kindergarten or even pre-K level, and curriculum should reflect that. It is only by exercising these complex behaviors throughout the schooling process that genuine learning can be accomplished and standards can be met.

Benchmarks are reference points related to student achievement. For example, if the state has established benchmarks at second grade and fifth grade, kindergarten through second grade teachers are responsible for the preparation to achieve the second-grade benchmark while teachers in third, fourth, and fifth grade are responsible for preparing students to achieve the fifth-grade benchmark. This range of grades being responsible for a particular benchmark means that teachers in each grade must keep their eyes on the instructional goal provided by the standard.

Best Practices

Any educational initiative is only as good as those who practice it. Classroom teachers hold the key to the success of a standards-based curriculum. Good teachers evidence professionalism, leadership, and pedagogical expertise everyday. Functioning within the framework of standards is simply another opportunity for teachers to apply their skills to positively effect student achievement. However, teachers cannot effec-

tively and efficiently practice what has not been adequately defined. How a standard is defined can make the difference between whether the classroom professional can use the standard as a tool to achieve more positive student outcomes or whether it will confound teachers' efforts and stifle student achievement.

It is important that responsibility for the necessary instruction be placed in the hands of professional educators trained to manage the teaching/learning process. When teachers are included in the articulation and prioritization of state-mandated standards, they are able to see where they play a role in the achievement of the standards. Further, it is likely that they will feel privileged to be part of this process. Educators will know what they have to teach in order to do their part. Yet, they will have the flexibility of accomplishing this in the manner that best suits their teaching style and strengths and in a way that considers the wide range of learning styles of their students. Teachers exercise their professional judgment as related to standards because they are charged with determining how students can most fully demonstrate what they know and are able to do. They must continually evaluate whether or not individual students are progressing toward the achievement of the established standards. When a teacher recognizes that a student is falling behind, it is the teacher's responsibility to take whatever intervening steps are necessary to get the student back on track.

A strong, well-enunciated, and thoughtfully written curriculum is a powerful tool for learning. Curriculum that is aligned to standards should do the following:

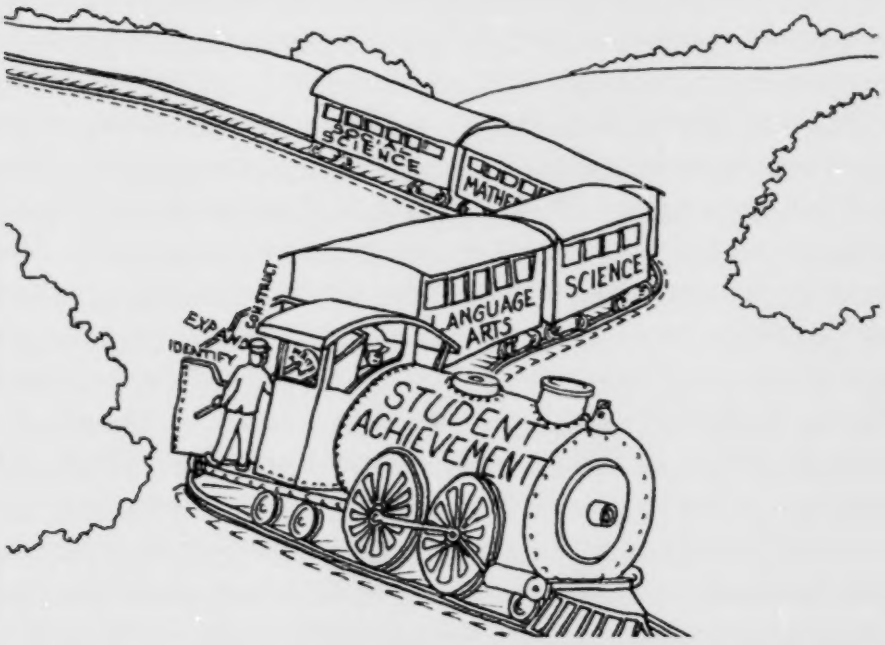
- Address and reflect state standards.
- Recognize time constraints.
- Reflect local consensus and priorities.
- Seek to synchronize content areas and grade levels.
- Allow for reinforcement, reflection, and application without redundancy.
- Contain assessment possibilities within the standards themselves.

A holistic approach to standards development and student achievement results when each of the above components are present. The standards that are established, the material that is taught, and the curriculum assessed all will point in the same direction, toward the attainment of specific standards.

State Standards

What becomes obvious as one reviews the standards from various states is that there is no consensus from state to state as to what form standards should take (Kendall and Marzano 1996). Such inconsistency is antithetical

to the standards movement, which has at its core not only establishing rigorous standards (although this is most certainly a top priority) but also providing a means for valid comparisons of performance levels of states, districts, schools, teachers within those schools, and students. The desire is to have a means by which educational outcomes can be compared in an apples-to-apples fashion, which can only take place if an apples-to-apples method of comparison is used.



The lack of consistency among state standards becomes evident when the levels (grades) at which the standards are to be applied is examined. In Nebraska, benchmarks are established for mathematics in grades one, four, eight, and twelve (Nebraska Mathematics Standards 1998). However, in Pennsylvania, the benchmark levels for mathematics are in grades two, four, eight, and eleven (Pennsylvania Chapter 4 Curriculum Standards 1998). In Illinois, the benchmark levels are not defined by grade level but by the terms early elementary, late elementary, middle/junior high, early high school, and late high school (Illinois State Board of Education 1997).

The varying way of establishing benchmark levels for the various standards is not the only difference in the form that standards take. There is no nationally prescribed way of formatting standards. Some states render their standards vertically (K–12) while others render them horizontally (by subject area). In Florida, Connecticut, South Carolina, Washington, and many other states, standards are written and accompanied by lists of stu-

dent demonstrations, of suggested classroom practices, and of suggested parent activities. These differences in the way the state standards are designed show that even though there is consensus for the need for standards, there is little consensus for how to structure the standards document.

Curriculum must address and reflect the specific standards of the respective state within which the curriculum is to be taught. All curriculum development should relate to state standards.

Time Constraints

Researchers for the Mid-continent Regional Educational Laboratory (McRel) analyzed standards documents written by state boards of education and national subject area organizations and found "200 separate standards that addressed 3,093 more specific topics" or benchmarks (Kendall and Marzano 1995). McReL explained that a student would need to master one and a half standards per day for thirteen years in order to achieve all of the national standards. If all the state standards were added to the national standards, it would be ridiculous to think that all students could master the standards that have been mandated. It would be even more ridiculous to think that teachers could prepare students to achieve all of these just by handing the standards to the teachers and telling them to make sure students learn them.

The huge number of standards and the fact that these standards are often poorly or too broadly written has led to frustration on the part of many teachers. Recent and revived innovations in scheduling the instructional day and/or instructional year to allow more time for learning will not have the desired transformational effect if a competent and comprehensive curriculum based on standards is not the foundation upon which these structures are built. Curriculum devised to help students attain standards must be relevant and worthy of the instructional time that teachers take to deliver it. Time is one of the most valuable instructional resources, and it must be used wisely.

Local Consensus and Priorities

The old saying that "all politics is local" holds true for all educational issues as well. There are differences in educational and funding priorities among districts within the same state. And the character and ethos of rural, suburban, and urban schools can differ greatly. Because many states leave funding of local school districts to the property taxes of those persons who reside within the district, local priorities and support are a vital and undeniable requisite for developing a standards-based curriculum. However,

because student performance is measured by state testing programs, state prescribed standards cannot simply be ignored if students are to be prepared for these tests. All of the stakeholders in the educational process must work together as a team with a common goal and common purpose. That common goal and common purpose must be seen as important and worthy of time and attention.

Decisions about what to include, how to cover the material, how much time to spent on the material, and how to measure a student's grasp of the material are made thousands of times everyday by classroom professionals and always have been. When professional judgment is informed by well-articulated, meaningful standards, curriculum can be considered to be aligned with standards.

Content Areas and Grade Levels

Both the specific content and the level at which the content is to be introduced, mastered, then applied to new situations are often hotly debated elements of setting and articulating standards. What should be taught is at least as contentious as how it should be taught. What content should be taught is often seen through the prism of culture, ethnicity, and local priorities. Making the effort at the district or school level using subject-area experts from within the local system can create a rigorous and at the same time streamlined curriculum that can deal with the exponential increase of information occurring every year. Standards are brought to life in the classroom only when the curriculum is not only defined but organized in a manner that recognizes that precious little instructional time is available and that students need to process a massive amount of material.

Integrating the curricula using tools such as curriculum mapping and thematic instruction, which have been described by Hayes Jacobs (1997), Fogarty (1991), and Kovalik (1997) among others, can greatly enhance the chances that standards will thrive while facilitating student achievement. Much of the good presently done in classrooms is indeed appropriate and should be retained and enhanced. However, what is done must be aligned to specified standards. All standards must be addressed in some way in the classroom. It is impossible to teach to each individual standard. Costa (1999) suggests that teachers employ a strategy of "selective abandonment" whereby they prioritize the content. Williams and Dunn (2000) refine Costa's idea as shown in Selective Abandonment Criteria (Figure 1.3), which defines the three types of material as essential, supportive, and extraneous. That which is judged to be essential should be given instructional priority, that which is supportive may be dealt with in conjunction

with other material or as a cooperative or independent learning experiences, and the extraneous material can be included as time allows.

Figure 1.3 SELECTIVE ABANDONMENT CRITERIA

Essential

- Has a real-life practical application
- Fundamental step in a larger process
- Based in the present
- Helps students function in the world in which they live
- District- or system-articulated benchmark directly tied to a vital concept

Supportive

- Collaterally linked to a curricular objective
- Promotes independent study opportunity
- Can be more fully developed in another curricular area
- Provokes student interest and motivation to learn more
- Provides additional opportunities for students to develop a wide range of intelligences

Extraneous

- Based in knowledge about theory or the past without practical application in the future or present
- Fun but not linked to a curricular concept
- Exercises only the logical/mathematical and verbal/linguistic intelligences
- Does not promote positive group interdependence

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Reinforcement, Reflection, and Application

How teachers teach is a function of what they are asked to teach (Kovalik 1997, 121). Classroom professionals must engage in an ongoing dialogue about how they each have a role in bringing about student achievement. Teachers can then exercise a farsighted view of what is taking place in their classrooms. When they are aware of what instruction has taken place in earlier grades and within other subject specific classes, teachers can tailor instruction to reinforce earlier student experience, provide appropriate vehicles for students to reflect upon their prior knowledge, and support application of that knowledge in a real-world context. The curriculum should allow for reinforcement and application without redundancy.

Assessment Possibilities

Most states are tying mandated assessments to standards (Marzano and Kendall 1997). Forty-seven states, the District of Columbia, and Puerto Rico have assessments directly tied to standards (American Federation of Teachers 1999). Standards provide a quantitative way to compare student achievement. A real driving force behind the push for standards is the emphasis placed on achievement and accountability. The simplistic view is that if there are standards, schools can test what the standards define as necessary learning. Even though many teachers and administrators may question whether testing is an adequate way to appraise learning, government officials and politicians want testing to add an accountability factor to the implementation of the standards in the local schools. Diligent citizens will surely compare assessment results between districts. And, if the results have a financial impact on district funding, as they currently do in Pennsylvania and other states, they will just as surely demand that funding go to schools that meet standards. Criterion standards themselves will provide a means within the standard itself for evaluating or assessing student achievement of that standard.

The Consensus for Standards

The idea of and movement toward a standards-based curriculum has had a chilling effect on most teachers. Some teachers have been frustrated by the enormity of standards and the lack of direction they have been given on how to accomplish these goals. Others believe that they should not waste their valuable time trying to conform to an idea that may be just another passing fancy of college professors, politicians, and business people. Some believe that standards will fall by the wayside like many other initiatives have when the political wind changes, and they see no need for staff development. "Why bother dealing with something that will go away?" they reason.

There has been little written or presented that shows educators how to get standards to the classroom level. Further, there has been a lack of hands-on training to show teachers how to use the standards as a classroom tool. In many cases it appears that standards have been designed without prior consideration of how they are supposed to be delivered and assessed in the classroom. This has contributed to the overall frustration with standards. While this frustration is understandable, poor communication should not be allowed to undermine the overall idea of an educational system based on and measured against prescribed standards.

Many indications at both the national and state levels point to the fact that standards are not going away any time soon. One such indicator is the nationwide discussion surrounding the issue. Across the United States, educators, politicians, media sources, and the general public are talking about standards. Educators are anxiously discussing the reality of the standards movement because they are concerned with what this agenda will mean to the profession. Politicians tout standards as a guarantee that U.S. students will compete successfully in worldwide testing programs such as Third International Mathematics and Science Study (National Center for Education Statistics, Office of Educational Research and Improvement 1998). Media sources proclaim that standards are a way to hold schools accountable for developing world-class students. The general public says they want standards if the standards will provide a return on their tax dollars in the form of good schools that produce top quality students.

In addition, the movement toward standards enjoys broad national support. Kendall and Marzano (1996) list no less than seventeen national commissions and organizations such as the National Committee on Science Education Standards and Assessment and the National Council of Teachers of Mathematics as having designed national standards for their respective academic area. Each of these national groups has written their standards with the idea that if students strive to meet the articulated standards, they will master the necessary skills within the respective discipline. Not only is there a consensus on a national level for standards, there also appears to be consensus in individual states to create standards for their respective educational programs. According to the American Federation of Teachers (1999), forty-nine states have developed state-level standards. Iowa leaves standards development to local districts.

Another sign that standards are a focal point of education in the future comes from educators and politicians who espouse the value of standards. Daggett (2000) contends that knowledge alone is inadequate and that students must be required to demonstrate their ability to use the knowledge by achieving rigorous and relevant standards. Through standards, educational reform will take place because the standards will force educators to examine exactly what students are supposed to know and be able to do. Even researchers who take an inquisitive and sometimes skeptical posture toward untested educational innovations have written that the standards movement has created so much interest that it will be beneficial to students because of the curricular interest the movement has caused (Popham 1997).

Standards-Based Instructional Plan

One of the key ingredients to successfully implementing standards in the classroom is the focus on standards—each part of an instructional plan must relate to standards. The following plan, devised for middle school students, connects two broadly written state graduation standards in terms of criterion standards that relate to the middle school level, thus aligning state standards to classroom practice.

The Water Cycle

Adapted from material developed by Ryan Bucher

State Standard(s) to Be Assessed

State standards include the following:

- Illustrate the water cycle to show the behavior of water.
- Demonstrate competence in the general skills and strategies for reading a variety of literary texts.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

Teachers gather information during the pre-assessment phase of the lesson about what students know and can do as they begin studying a new unit or topic. By determining what false or naïve perceptions or actual understanding students bring to the study of a given topic, the teacher can adapt the lesson to address what he or she learned about the students during this phase.

- Teacher leads a discussion with the class as to what happens to a drop of water after it falls from the sky.
- Teacher listens for students to say any of the terms used in the water cycle, and writes any of the terms as they emerge in discussion on the board or overhead.

Criterion Standards to Be Assessed

For any given state standard there can be any number of relevant criterion standards. The criterion standards articulate the action the student should be able to demonstrate to show that they have mastered that element of the state standard. One can tell if the student has met the first criterion standard in the following list by providing the student with an opportunity to *identify* the four terms used in describing the water cycle (see the criterion standard rubric for this lesson).

- Identify the four terms used in describing the water cycle (precipitation, runoff, evaporation, and condensation).

- Define the four terms used in describing the water cycle.
- Illustrate how a drop of rain can fall to earth and end up being a drop of rain again.

Student Learning Activities

These are the tasks or performances assigned to students so that they may evidence achievement of a criterion standard.

- In small groups students perform a series of simple experiments that demonstrate precipitation, runoff, evaporation, and condensation.
- Each group creates a definition of each of the words according to the group's observation of the results of the experiments then presents its definition for the consideration of the whole class.
- A definition for each word is arrived at when the class agrees on acceptable wording.

Formative Assessment

While students are engaged in the learning activities, the teacher gathers information about emergent student ability to make personal meaning of a concept. Methods by which information can be gathered include the following:

- Teacher checks the four terms the students selected from the list that represents the water cycle.
- Teacher reads over the definitions that the student groups wrote about each item, making suggestions when appropriate.
- Teacher checks each student's maps to see if he or she correctly identified each component of the water cycle.

Summative Assessment

The following provides an authentic opportunity for students to apply the concept they have learned during the learning activity. What is of particular interest in this summative assessment is that it provides the science students with a chance to use skills such as writing and dramatic interpretation (sometimes left only to the language arts class) and movement (often the sole domain of the P.E. class) to demonstrate understanding of science concepts.

- In the same groups as composed for the learning activities, students will prepare a short skit about a personified drop of rain making its way through the water cycle.
- In preparation for performing the skit, the students rehearse dialogue and movements.
- As audience members, the students clap once or ring a bell or indicate in some other way when they hear the words "precipitation," "runoff," "evaporation," or "condensation" uttered. Performances may be videotaped for subsequent peer- and self-evaluation or used in a student portfolio.
- In addition or alternatively, students can prepare a diagram that depicts the water cycle.

Criterion Standard Rubric

This is the tool from which a score or grade can be determined. The student is made aware of what constitutes attainment of a criterion standard before embarking on his or her performance task. By circling "yes" or "no" the teacher provides a record of what a student was or was not able to do under a given set of circumstance on a given date. Note that multiple opportunities must be given to students to show what they know and can do. Being able to perform the activity indicated in a criterion standard once does not evidence attainment of that criterion; likewise, a students inability to perform the activity once does not mean that he or she cannot attain the criterion standard. Performance verbs (in italics) are expressed in the past tense to denote that action has or has not taken place.

- The student *identified* the four terms used in describing the water cycle (precipitation, runoff, evaporation, and condensation) by a single clap or ring of a bell when one of the words was mentioned in the skits. YES or NO.
- The student *defined* the four terms used in describing the water cycle in his or her small group and as a class. YES or NO.
- The student *illustrated* how a drop of rain can fall to earth and end up being a drop of rain again through writing and performing a skit. YES or NO.

Chapter 2

The Need for Dialogue

The potential benefits of teachers talking with teachers from the same grade level as well as from other levels about what students really need to know and be able to do are great. Unfortunately however, teachers seldom talk with one another about what students are actually doing or should be doing to learn the curriculum. Even less frequently do teachers talk about what they are doing to instruct students. When teachers do get together, they are usually involved in such things as staff development related to theoretical approaches to instruction, writing curriculum for the purpose of compliance issues, or general staff meetings on how to handle the routine activities of the school. Teachers want to talk to one another but do not have the time. Communication is critical because with the enormity of standards the teacher must decide what can be done in the average 180-day school year.

Communicating Consensus

Certain questions are central to the challenge of designing curriculum that is aligned with standards. Can a group of reasonable persons agree on what students really need to know and be able to do? Can the teacher teach everything implied in all the standards, or do groups of teachers need to define what students can learn and do within 180 days to achieve the basic concepts brought forward by the standards? This

chapter endeavors to answer these questions and deal with the issues that surround the answers.

Agreeing to Agree

It is imperative that teachers communicate with each other with the expressed purpose of producing concrete results. Only by engaging in directed dialogue can standards become the focus of the curriculum being delivered in the classroom. As teachers talk about what they believe students should know and be able to do, they will discover that they already teach toward some of the standards. They may also discover that they have different opinions than do their colleagues on what must be emphasized to prepare students to meet the standards. One of the best ways to minimize varying opinions on what should be emphasized is to have a systematic approach to the dialogue. A systematic approach leads to concrete points that focus teachers on what should be learned by students at each grade level in relation to the standards.

Any dialogue process must take place before efforts at curriculum design are undertaken. The goal of the process should be for teachers to develop or enhance some concept of how they will design a classroom curriculum approach related to the standards. The process as described later in this chapter is comprised of four discussion steps. Each step includes an activity followed by questions that stimulate discussion about what was identified in their activity.

180 Days and Counting

The only way for the standards to be adequately addressed is for groups of teachers to decide what students should do to meet the various benchmarks and standards. This means that more emphasis should be placed on certain standards over others. Those standards that teachers agree are absolute necessities should be given the maximum amount of effort. Those that remain may be addressed through independent study projects, jigsaw cooperative learning activities, or within the course of problem-based or thematic instruction. Some teachers may see this idea of more emphasis on some standards over others as blasphemy. However, even the most effective teachers can only deliver what they have the time to deliver. The only possible hope for actually focusing on all standards equally is through curriculum integration, and teachers need time for discussion if academic discipline barriers are ever to be removed from the delivery of curriculum. Schmoker and Marzano (1999) point out that certain standards must be emphasized over others if students are to have a chance to achieve any of the standards. If appropriate discretion

is not applied, teaching to standards would be tantamount to teaching reading by working one's way through the telephone book.

Evidence that teachers must determine what standards to emphasize was provided by Kendall and Marzano (1995) who showed that the sheer number of standards makes it virtually impossible to teach to each one of them as they have been articulated. This mountain of written standards means that teachers must devise a plan for teaching to the standards within the time constraints of the school year. If teachers as a group determine which standards are the most important ones to be addressed in the time available, chances are that students will score well on test questions that draw on those standards. There is also the possibility that by looking for the standards that must be emphasized as a group, teachers will recognize integration opportunities. However, if teachers, as individuals, decide what to emphasize, students will not receive a consistent emphasis that will pave the way to high achievement in any of the standards. When individuals, instead of groups, determine what emphasis should be placed on standards, students are likely to receive disjunctive or repetitive instruction that hampers their ability to meet standards.

Stakeholders as Team Members

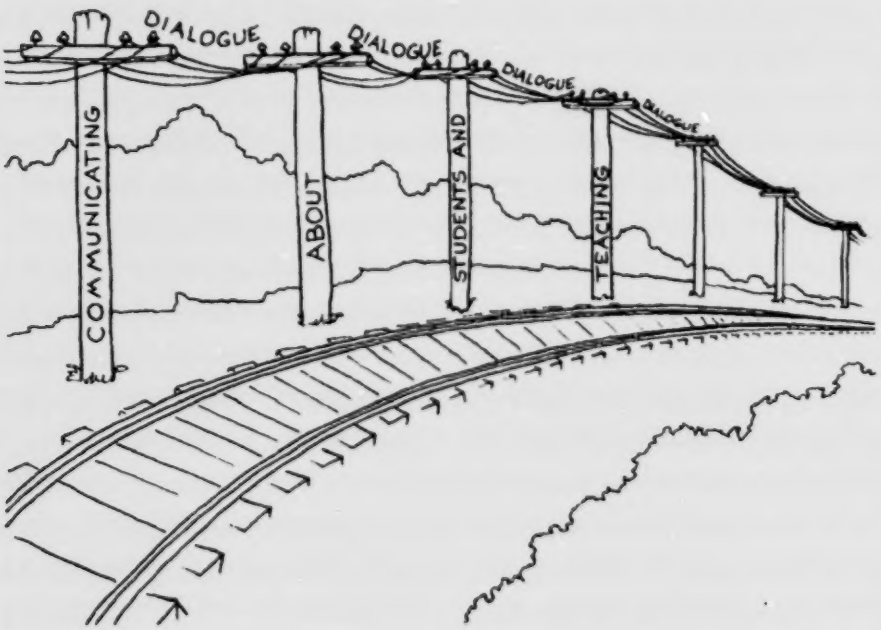
The purpose of the dialogue team is to prepare teachers to focus on the curriculum that is actually being delivered or should be delivered, breaking down the false perceptions of what the curriculum is as well as dealing with what teachers actually deliver. It is safe to say that even in schools where a curriculum document is in place, it is highly likely that what is outlined on the document is not what occurs in the classroom.

Contrary to what should be practiced, there is a difference between what teachers teach and what a local curriculum guides articulate. Therefore, the dialogue process should begin eliciting discussion on the extent to which teachers use the local district curriculum guide as the framework for instruction. The teachers involved in the process should answer this question: Do you use the district curriculum guide on a regular basis when planning instruction? It is likely that most teachers will answer negatively. Some teachers may answer that they have never seen a curriculum guide; others may say that they have a curriculum guide gathering dust on a shelf in their classroom. Still others may believe that the textbooks they use provide them with their curriculum; therefore, they do not use the district guide. Each of the answers are indicative of a problem with school curriculum. The curriculum guide has very little to do with what is actually

taught in the classroom. Standards have the power to bring an end to a "close the door and do my own thing" manner of thinking that is detrimental to the achievement of standards. Since standards are a framework from which state-level assessments are developed, standards and curriculum must be thought of as one in the same. By doing this, teachers prepare students for achievement of state standards.

The dialogue process then is used to help teachers begin to focus curriculum design on what students need to learn as opposed to what teachers need to teach. Because of the framework produced by standards, the content to be delivered by the teacher is evident within each standard as it is stated. How the teacher is to instruct the curriculum becomes secondary to the fact that students are assessed on the standards.

Many teachers consider curriculum a concept related to what the instructor is supposed to do. Therefore, the dialogue process is a step that helps teachers begin to refocus *how* they do what they do. Education is meant to provide students with the skills and knowledge they need to live productive lives. Therefore, education must give students the opportunity to develop skills that prepare them for life. All learning can be beneficial to a student's future life if that learning is based on what relationship standards have to the real world of living. Dialogue requires teachers to begin looking at what they teach from the perspective of how students will use the learning in their future lives.



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Who Participates in the Dialogue?

Before the dialogue process can take place, people agree to take part in it as members of the dialogue team. To make the dialogue process a viable review and plan for curriculum, the dialogue team must include people who are truly interested in what students are supposed to know and be able to do. These people must be able to break from the perspective of looking at curriculum from the perspective of what the teacher is supposed to do and begin to look at curriculum from the perspective of what the student is expected to do as a result of instruction. This is necessary because the standards are written from the viewpoint of what the student is supposed to know and be able to do, not what teachers are supposed to do.

The dialogue process is best done with groups of people doing just what the term implies, talking. The structure of the dialogue process described here is intended to bring about the following results:

- understanding what the term *standard* means,
- developing a strategy for facilitating student achievement, and
- determining the expectations that students must meet locally to achieve a standard.

For dialogue to achieve these three things, the discussion must take place between several groups of people including non-educators. In addition to teachers and administrators, parents and business people should participate in the dialogue process if the student achievement standards are to accurately reflect the local culture and community's expectation for learning.

Teachers' Role in the Dialogue Process

Obviously, teachers are part of this dialogue, because they work with students every day and are responsible for delivering the instruction necessary to meet the standards. Teachers who participate in a dialogue process with peers who teach at all levels, kindergarten through twelfth grade, emerge with a greater awareness that the curriculum is greater than the sum of its benchmarks. They begin to share ideas so they each know what the other is doing and recognize that each is an equal partner in helping students achieve the standards necessary for success after graduation.

Administrators' Role in the Dialogue Process

Because administrators are responsible for knowing what occurs in their schools, they must know what curriculum ideas are being reviewed and discussed by teachers and others. Administrators are those held accountable

by the community when test scores or performance evaluations are reported to the public. In addition, teachers' abilities to be cognizant of and teach to standards is part of (or should be part of) teacher evaluations that are done by administrators. Administrators may also act as facilitators in the dialogue process, informing all of the parties involved about the mandates under which the school and district function.

Parents' Role in the Dialogue Process

Parents can offer their respective interpretations of the standards as well as their views on what they believe students should learn. When parents have the opportunity to discuss curriculum with teachers, both groups learn from each other. Teachers learn what parents think the school should do to educate students, and parents learn about the actual workings of school and instruction. In addition, parents must be part of the discussion so that they begin to see how difficult it is to define what should be taught and how to teach it.

Business Persons' Role in the Dialogue Process

Business people can offer information about the needs of students from a corporate perspective. Since the vast majority of students will become adults who will work in some relationship to the business world, business people can help teachers and parents see what students need to know and be able to do to be productive members of society. Business people can also help the group recognize trends that may have an impact on the educational needs of the students in the future.

When educators, parents, and business people come together to discuss what is done and should be done in schools, a community consensus develops about what students should learn. Instead of addressing standards with individual teachers deciding how it should be done, the focus is broadened.

Steps in the CAST Dialogue Process

Communicating About Students and Teaching (CAST) is a way for the various stakeholders in the education process to reflect upon or learn about the rationale behind instruction. The steps of the process are quite simple. A teacher working alone can follow the steps, but the steps are

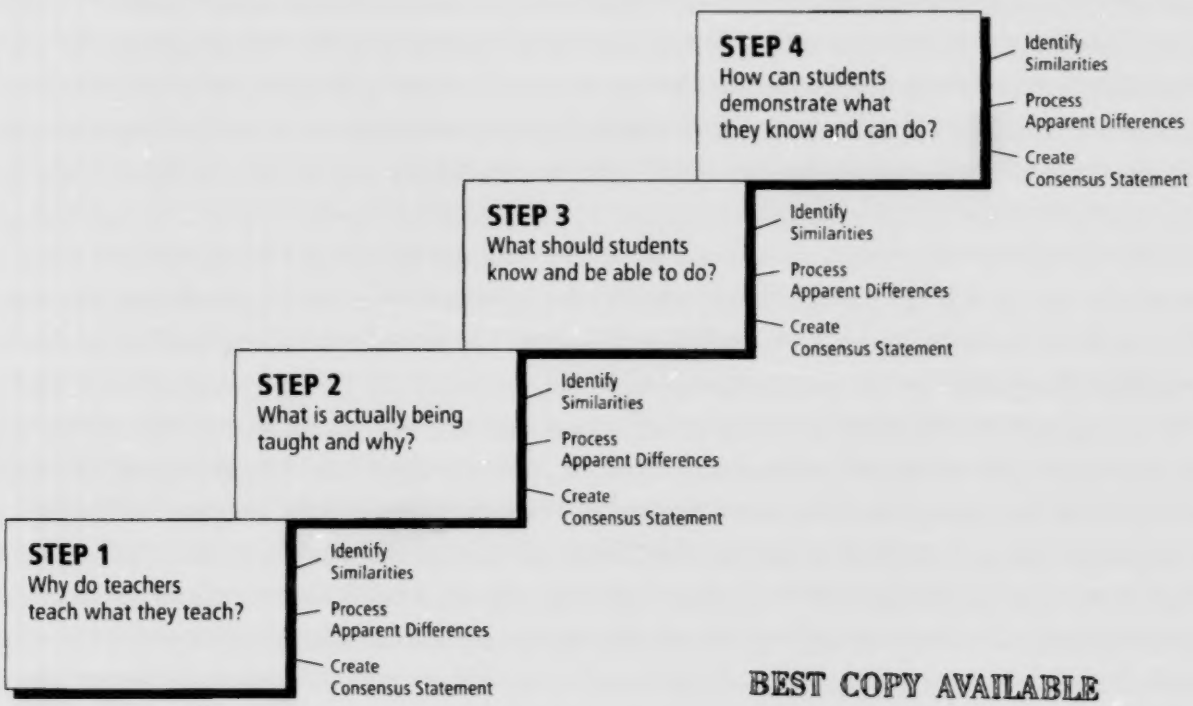
most useful if the teachers, administrators, parents, and business people join together to complete them. Each step is designed to help participants begin to recognize that there needs to be a focus on why particular information is taught. If educators are going to know how to establish a way to effectively address standards, they must have a clearly defined reason for teaching everything that they teach.

The following four questions are central to the CAST Dialogue Process and can help bring focus to group discussion by promoting consensus:

- Why do teachers teach what they teach?
- What is actually being taught and why?
- What should students know and be able to do?
- How can students demonstrate what they know and can do?

Each of the four steps in the process (linked to the four focus questions above) have three discussion points: identify similarities, process apparent differences, and create a consensus statement. By talking through the discussion points and arriving at common ground at each step in the process, understanding among and between groups is fostered (see Figure 2.1).

Figure 2.1 STANDARD AS A SERIES OF DESCRIPTIVE STATEMENTS



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Step One: Why Do Teachers Teach What They Teach?

The first step in CAST gets to the root of the issue. Each participant is asked to consider the following question: Why do teachers teach what they teach? The participants are asked to list five statements that will answer this question by completing the statement: We teach (insert the subject to be discussed) so that students can . . . . Participants answer this question by thinking about why an adult must know the subject material in question. When thinking about why students are instructed in the subjects that they are, participants are compelled to begin thinking about why facts and concepts are really taught.

The intent is to view this question from a perspective of what people really need to know and be able to do to live productive and successful lives. The statements a participants lists as to why subjects are taught should give that individual and the persons with whom he or she shares his or her list an idea of the real reasons for teaching students what they are taught. Figure 2.2 lists examples of the kinds of responses that might be elicited from group discussion.

Ideally after the list is completed, it should be exchanged or shared. Multiple perspectives have the greatest chance of bringing about the greatest understanding. Discussion should center on the various ideas presented in the lists and how those ideas relate to students and standards. Participants can explore how people uses the skills listed in their own lives, giving actual examples.

Identify Similarities

When a group is composed of persons from different groups as suggested, certain questions can lead to excellent discussion. Participants can compare lists and identify the similarities of the reasons for teaching a certain subject. They should ask themselves, What are the similarities on the various lists? In the examples shown, one can see the basic concepts of addition, subtraction, multiplication, and division are not only deemed important mathematics concepts (appearing on each of the lists), they are the basis and foundation of other higher-order mathematical applications.

Process Apparent Differences

Another very important discussion point is the differences that exist between the lists. Participants should ask themselves, What are the differences found in the lists? Discussion will reveal that some persons believe teaching is done for practical living reasons while others think the teaching is done to prepare students for tests or other mathematics related func-

Figure 2.2 SAMPLE LISTS OF WHY SUBJECTS ARE TAUGHT

Second-Grade Teacher

We teach math so that students can . . .

1. Solve problems.
2. Subtract and divide.
3. Measure.
4. Multiply.
5. Divide.

Elementary Special Education Teacher

We teach math so that students can . . .

1. Manage their finances.
2. Read, understand, and interpret basic graphs.
3. Use fractional parts to cook.
4. Learn to follow directions.
5. Understand time and scheduling.

High School Teacher

We teach math so that students can . . .

1. Take the SAT's.
2. Succeed in math courses in college.
3. Have information necessary to proceed to the next level.
4. Solve problems.
5. Do the basic math that will be necessary to do when they become adults.

Parent

We teach math so that students can . . .

1. Know the numbers.
2. Add, subtract, multiply, and divide.
3. Use calculators.
4. Control their own money.
5. Use scales on a map.

Business Person

We teach math so that students can . . .

1. Complete and calculate tax responsibilities.
2. Develop and follow a realistic budget.
3. Make change.
4. Keep accurate financial accounts.
5. Make bank deposits correctly.

tions. The obvious example of this is the high school teacher's list (see Figure 2.2). The high school teacher lists two reasons for teaching as tests and preparing students for the next level: we teach mathematics so students can take the SAT's, and we teach mathematics so students can succeed in

math courses in college. Even though both of these ideas are realistic and important they have little to do with using mathematics as a life skill, unless one considers that getting into college provides potential life skills.

Another difference that is obvious is that only one teacher has listed anything related to graphs and charts. The Third International Mathematics and Science Study (TIMSS 1996) information clearly shows that the United States has the only public school system in the industrialized world that does not require students to study statistics and probability.

Create a Content-Area Mission Statement

Devising a consensus statement that addresses why the subject under discussion is taught allows for a tangible product of Step 1. The conclusion should answer the question, Why do we teach _____?

The lists and the discussion provide the basis for creating a brief statement of why a certain subject should be taught. This statement should be no more than three sentences long and should provide the primary mission statement for the specified discipline, which then can be referred throughout the remainder of the CAST Dialogue Process.

Step Two: What Is Actually Being Taught and Why?

In the second step of the process, teachers identify the five most important units they teach. The administrators, business people, and parents each list the five most important concepts they believe should be taught. Once the topic and concepts are identified, there may be some specific differences among and between educators and non-educators. Such differences of opinion were recognized in a recent study (Daggett 2000). The study asked teachers from various disciplines to rank the importance of certain things students should be able to do while asking teachers of other disciplines, business people, and community members to rank the same expectations for learning. Data collected indicates that what teachers think is important is different from what the people outside the specific discipline think is important. For example, the data gathered from one of the sample groups illustrates an interesting difference. Of the top ten things that the group believed students should be able to do, business leaders ranked "learning to give oral directions" as the number one expectation of English classes. Educators from fields other than English rate giving directions as the third most important thing that students should be able to do. Non-educators who are not business people rate giving directions as the third most important priority of learning. However, English teachers rated giving directions as the ninth most important thing students must be able to do. Teachers of specific subjects have a tendency to identify certain

units as carrying more importance than those who do not teach that discipline list.

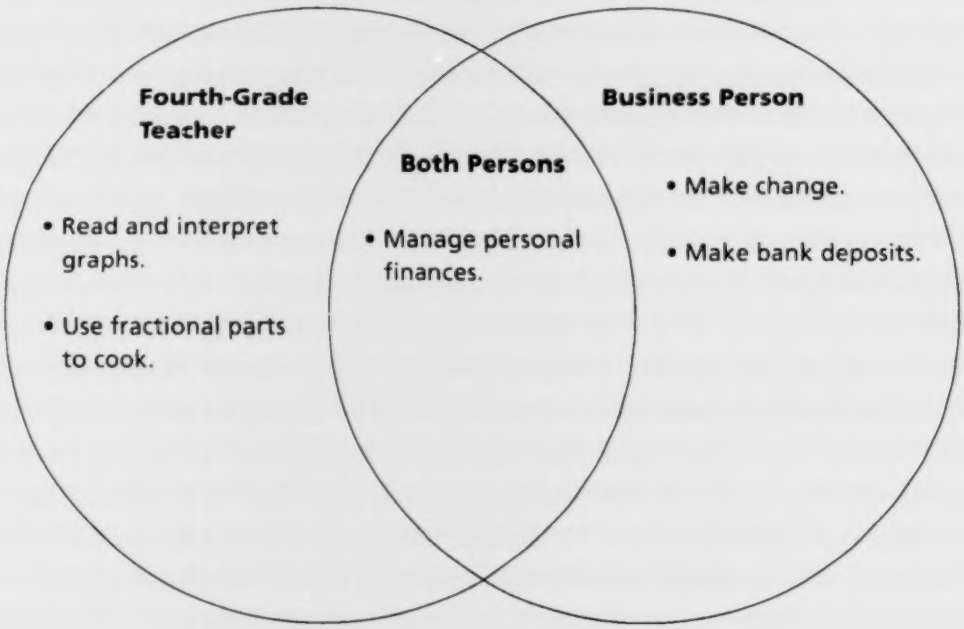
Generally, teachers teach from the perspective of intellectual development. Teachers want students to know as much as possible about a subject, because the teachers love that subject. People involved in the dialogue who are not attached by experience or emotion to a specific subject may help teachers understand that the primary reason for learning content should be the need to apply the content to real-life situations. Figure 2.3 can be used to record a list of the most important units and their respective real-world applications.

Figure 2.3 WHAT IS ACTUALLY BEING TAUGHT AND WHY?

The five most important units or concepts that I teach or I think should be taught are:	What is the real-world application of each of the units or concepts?

Participants can examine the lists using the first two discussion points presented in the CAST Dialogue Process: identify similarities and process apparent differences. To visually represent this, participants can complete a Venn diagram to visually illustrate the similarities and differences. Figure 2.4 is a Venn diagram that shows the points of similarity and differences between lists generated by a fourth-grade teacher and a business person.

Figure 2.4 VENN DIAGRAM



Among other things, this focus question and its discussion points will likely reveal how, even within disciplines, there exists great diversity. But again it is important for participants to see common themes even among diverse disciplines.

The ultimate real-world application comes from problem solving. In the real-world, people are called upon to solve problems whose answers lie not just in one content area but in the application of knowledge derived from multiple areas. Employing problem-based learning is a way to infuse authenticity into instruction and to make use of many disciplines at once. Barell defines problem-based learning "as an inquiry process that resolves questions, curiosities, doubts, and uncertainties about complex phenomena in life" (1998, 7).

An example of how the listing of the real-world application of units and concepts can lead to discussion is illustrated with the middle school science teacher's example in Figure 2.5.

Figure 2.5 AN EXAMPLE OF REAL-WORLD APPLICATIONS TIED TO SCIENCE UNITS

A middle school teacher listed these science units or concepts as most important:

1. Scientific Method—Use the scientfic method to solve an oil spill in the ocean.
2. Land—Decide how the soil taken from the land where a new school will be built can be used.
3. Water—Explore how to help eliminate a problem of raw sewage draining into a nearby pond.
4. Environment—Determine how to use recyclable material to solve garbage disposal problems.
5. Space—Discuss how to use the sun's energy to provide energy for space travel.

The teacher can provide students with authentic problems to solve and facilitate the learning of units and concepts through the solving of the problems. For example, the science teacher could involve the students in a recycling project and thereby help them learn about environmental science.

Step Three: What Should Students Know and Be Able to Do?

This third step in the process has two purposes: to have participants begin to consider what a student must do to achieve the standard and to get participants to read and review the standards. It must be understood that many teachers and much of the public have not viewed the standards. Often standards are given to administrators and go unused unless or until a curriculum program is initiated. This step in the CAST Dialogue Process asks participants to spend time reviewing the state standards that relate to the discipline under discussion. After scanning the standards, several questions can lead to interesting discussion. It is important to remember at this point and at each step in the dialogue process that the CAST Dialogue Process is meant to offer opportunities to do just that—communicate about student achievement and the teaching methods and content that need to be brought to bear to assure that achievement. Standards are apparently here to stay. To keep the focus on aligning standards, discussion should not be allowed to digress into a debate about the merits of the standards movement or about the appropriateness of particular standards.

To begin the process of answering the focus question, What should students know and be able to do? a sample standard taken from the state in which the dialogue is taking place can be examined. Then everything a student will have to do to demonstrate achievement of that standard is

listed by the participants. An example of the form participants could use to accomplish this task is shown in Figure 2.6.

Figure 2.6 WHAT SHOULD STUDENTS KNOW AND BE ABLE TO DO?

Standard: Demonstrate knowledge of number sets, union of sets, intersection of sets, primes, composites, multiples, and factors.*

Use the blank space below to list five concepts or content items that must be assessed if the student is going to show evidence of achieving the stated standard.

1.

2.

3.

4.

5.

*Taken from Pennsylvania Chapter 4 Curriculum Standards 1998.

Instead of asking what teachers should do or what the curriculum should contain, this activity requires determining what students must do. In the past the question has been, What do the schools teach? With standards, the question is now, What do students know and what can they do? It becomes clear then that standards are not related to delivery of content but instead how what has been learned will be measured. Standards have the potential to catalyze a shift in thinking for all stakeholders. The sample response shown in Figure 2.7 shows how a participant still functioning under a traditional mindset lists things that the teacher is supposed to teach.

Figure 2.7 STANDARD AS A SERIES OF DESCRIPTIVE STATEMENTS

Standard: Students will realize their full potential to acquire the knowledge and skills needed to know and use numbers, number systems, and number relationships.

Assess number systems, least common denominator, prime factorization, common denominator, solving simultaneous equations, number lines, graphing inequalities with domain, conjunctions, disjunctions, quadratic equations

The sample response shown in Figure 2.8, however, shows that the participant has started thinking about what students are supposed to do instead of thinking about what teachers are supposed to do.

Figure 2.8 A SAMPLE OUTCOME FOR STEP FOUR

Standard: Estimate, refine, and verify specified measurements of objects.

1. Identify articles in a classroom that can be measured.
2. Use floor tiles or ceiling tiles to estimate width of the classroom.
3. Calculate the size of the classroom by using a long string.
4. Construct a box of specific size with cardboard panels.
5. Predict the size of textbooks by estimating size with the length of a finger.

Compose the authentic activities that students can do to demonstrate their ability to reach a standard. What could students do to show what they know and are able to do? Compose a list of five activities that students could do to demonstrate that they have achieved the following standard.

Step Four: How Can Students Demonstrate What They Can Do?

Step four is a corollary to step three in that once one has defined the discrete skills and knowledge one should possess, the natural next step is to ask how those things can be demonstrated. There are various ways in which students can demonstrate their understanding. Perhaps the one that is most commonly employed is the test or quiz. However, paper-and-pencil examinations may do a disservice to students, because they are more likely to discover what a student does not know than to give that student a chance to show what he or she does know.

Another purpose of this step is to have participants think in terms of how students can be assessed with activities that may have real-world implications. When the dialogue contributors think in terms of student performance as a way to learn if students are achieving standards, participants begin to recognize how many things done in schools do relate to the real world. The problem is that schools seldom draw the connection between what students must do in an academic sense and how this relates to the activities they must engage in as adults. There may already be consensus about what should be taught but the participants' phrasing of what they think should be taught differs from that of others. Participants will find again that they have many ideas in common, and perhaps the apparent differences lie in the language they use to express their ideas (which leads to the next chapter where the need for a common language is discussed).

Within this step, participants will have various ideas that they may list. These listed ideas will give the dialogue team the opportunity to discuss what has been written. Participants should look for likenesses and differences of listed activities. The group will begin to see how the ideas presented and developed demonstrate that the school does offer some real-world activities. Unfortunately, educators who work with these concepts do not think of activities as real-world because they think in terms of instructional delivery as opposed to student performance.

As the reader may suspect from this example, participants will list activities that can be and probably are done in school. With this fourth step though, participants in the dialogue begin to focus on how they can give students activities that are authentic. In the process of doing this, they will also recognize how standards can be assessed by student performance.

The CAST process offers the important service of giving all those who take part in it the opportunity to discuss what *is* happening and what *should* be happening within a school curriculum. The dialogue facilitates thinking in terms of student performance instead of teacher performance. The process also leads participants to think in terms of what students must

do to achieve standards as opposed to what teachers must do to achieve standards. These concepts are very important in preparing people to become part of the curriculum writing necessary to devise the standards-based curriculum in a school.

Standards-Based Instructional Plan

In the following high-school-level foreign language lesson plan one can see the state standards that are addressed in this lesson are broadly stated. When the standards are thus articulated it is very important that teachers work together to determine how the more globally defined standards relate to the specificity of an instructional plan. An individual teacher's translation, so to speak, of the standards may differ from that of a colleague. When dialogue takes place as the first step in the curriculum design process and when the teacher is left to create a lesson plan, they focus on how they can bring their pedagogical strengths to bear on the material rather than on what material to cover.

Greetings and Introductions in Spanish

Adapted from material developed by Eve Lyash

State Standard(s) to Be Assessed

State standards include the following:

- Use the target language to engage in conversation, express feelings and emotions, and exchange opinions and information.
- Demonstrate an understanding of the nature and function of the English language.
- Demonstrate competence in speaking and listening as tools for learning.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

The following allows the teacher to uncover the knowledge students bring to the classroom environment:

- The whole class takes part in a discussion of American greetings and introductions.
- The students engage in questioning and debate on whether or not the students think that Spanish speakers greet and introduce themselves in the same way that English speakers do.

Criterion Standards to Be Assessed

As is the case with each criterion standard, those that follow begin with a performance verb. (See chapter 3 for a discussion of the role and function of the performance verbs as identified in a verb matrix.)

- Identify various greetings and introductions in Spanish.
- Write the greetings and introductions in Spanish and English.
- Compare greetings and introductions in Spanish and English.
- Demonstrate pronunciation skills in Spanish by pronouncing vocabulary correctly.
- Use greeting vocabulary to greet someone in Spanish.
- Employ introduction vocabulary.
- Compose a six-sentence conversation in Spanish using greetings and introductions.

Student Learning Activities

At this stage in the lesson, the students are not yet applying their learning but are working with it to gain the personal meaning they will need to apply it to the summative assessment and real life.

- Students pick out from their texts, computer programs, lab experiences, and previous teacher and student presentations words and phrases used in Spanish for greetings and introductions and write them in their notebooks.
- Students share the greetings they have identified, and the teacher will models their correct pronunciation.
- In a partnered conversation, pairs of students speak in Spanish from a script written in English that contains greetings and introductions.

Formative Assessment

From the observations made during the formative assessment, teachers can organize further activities to help students construct meaning from the content material.

- The teacher may use a checklist to monitor partnered conversations, noting correct pronunciation and usage.
- Teachers may want to include a written vocabulary quiz at this stage.

Summative Assessment

The following is a way for students to apply the concepts and skills they have practicing during the "learning activity" to an authentic task.

- Using their notes and texts, in small groups, students create greeting cards in Spanish.
- Each group is assigned a different occasion to commemorate.
- The groups "deliver" the cards to the whole class by reading them aloud in Spanish.

Criterion Standard Rubric

Notice how the point value for each of the following criteria is greater for operations in which students actively and authentically apply knowledge.

- The student *identified* various greetings and introductions in Spanish. (10 points)
- The student *compared* greetings and introductions in Spanish and English. (10 points)
- The student *demonstrated* pronunciation skills in Spanish by pronouncing vocabulary correctly during oral presentation of greeting card. (15 points)
- The student *used* greeting vocabulary to greet someone in Spanish. (20 points)
- The student *employed* introduction vocabulary in Spanish. (20 points)
- The student *wrote* the greetings and introductions in Spanish and English in the form of a greeting card. (25 points)

Chapter 3

The Language of Expectation

The use of language in the curriculum development process is an important issue. Technical jargon and words whose meanings vary from discipline to discipline hamper the ability to connect and interact as partners in the learning process. The language of expectation for students absolutely must have clarity and definition because it plays a significant role in defining and using standards in a meaningful way. Therefore, work with the language used to define how standards will be adopted is of the utmost importance.

The Need for a Common Language

Peckham (1979) asserts that real meaning is demonstrated only by appropriate response. If many teachers have not appropriately responded to the challenge that standards pose, it is perhaps because the real meaning of particular standards have alluded their understanding. It follows then that teachers and all stakeholders in education can only hope to respond appropriately (by fully utilizing standards as the basis for classroom instruction) if a method to facilitate their understanding is used. Rendering state standards as criterion standards is one such method.

A Verb by Any Other Name

As uncovered in chapter 2, standards need to be articulated and perceived as statements that identify what a student should do to demonstrate understanding. This implies student action and performance, which necessitates the appropriate and consistent use of verbs in writing standards. Stiggins' (1994) premise that verbs can activate the assessment process within the curriculum seems to agree with this contention. Verbs used in the curriculum design are very important to the clarity of that design. Verbs differ from nouns in that they are not processed by the receiver as having a concrete meaning (Reyna 1987). Teachers, students, and parents may have different visions of the meaning of many verbs. Therefore the choice and use of verbs should be done carefully when writing standards.

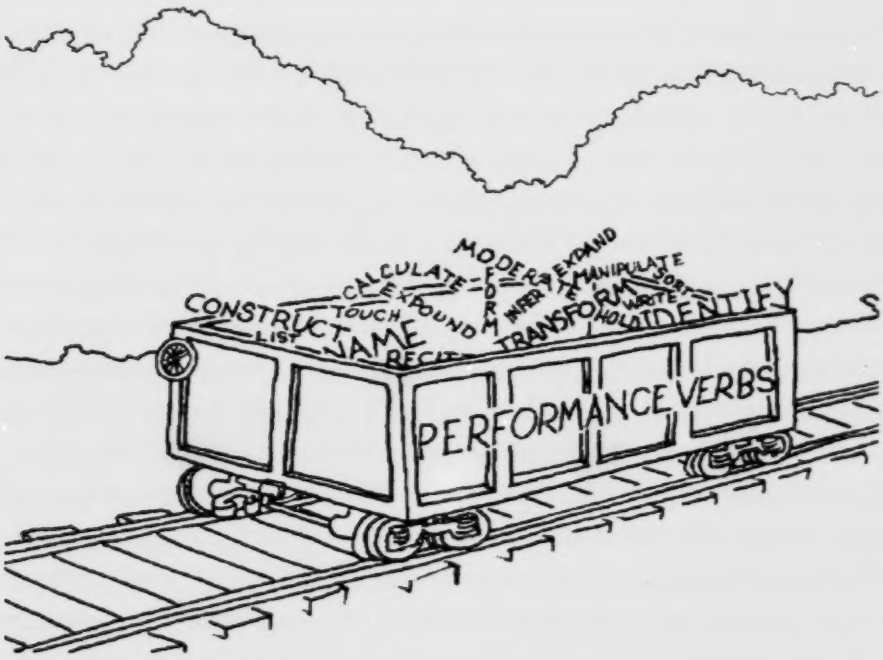
Stiggins (1994) and Quellmalz (1991) point out that performance criteria are only effective when the criteria are understandable and usable by all participants in the assessment process. The large number of verbs conventionally used in writing standards diminishes the chances that all stakeholders are able to understand and use them. In addition, many verbs are distinct to an academic discipline. The results of a survey found that each academic area had a list of verbs that was all its own (Perna and Davis 1999). Some examples follow:

- *Acquaint* was only used in social studies objectives.
- *Add* was only used by the mathematics writers.
- *Adhere* was used only in communications.
- *Answer* was used only by the science department.

What can be inferred from the survey's data is that there would likely be little consistency across the curriculum when the various subject area departments sat down to write criterion standards. Teachers generally write objectives with a personal understanding of what they wanted students to do or to know, but such a method of writing objectives gives no assurance that others share the teacher's personal understanding of what was to be done or known.

In addition to the potential problem academically distinct words pose, the sheer number of verbs used is also problematic. A lack of common verbs leads to performance expectations that are not consistent within the curriculum. And if performance expectations are not rendered consistently, the curriculum and assessment practices cannot be merged. A way to address the verb problem is to minimize the number of verbs used. Verbs have extended meanings; therefore, debating the meaning or stretching

the meaning of a verb is to be expected (Reyna 1987). Working from a uniform list of verbs with set definitions allows for a more predictable response to those verbs across disciplines.



While there might be some consistency regarding the way verbs are used and defined within content areas, there is little horizontal agreement about the meaning and use of certain verbs. This lack of horizontal continuity can limit the extent to which curriculum can be successfully integrated. For example the word *write* is used in each of the four disciplines (Perna and Davis 1999). In communications and social studies courses, *write* always meant to compose some form of drafted statement such as a paragraph or an essay. On the other hand, the meaning of the word *write* in mathematics and science related to the act of placing words or numbers on paper without concern for construction of a developed thought. The treatment of *write* illustrates how Peckham's (1979) theory about verbs becomes relevant. The verb *write* carries two different response expectations for students. When a communications teacher asked students to write, the students were expected to develop thoughts into a coherent statement. However, when mathematics teachers asked students to write, the students were expected to respond by copying words, numbers, or geometric designs on paper without regard to developing a thought.

Criterion Standards and Integrated Authentic Assessment

As stated in chapter 1, a criterion standard is the criteria that a student needs to demonstrate achievement of a standard. The standards on the list should reflect both the student performance expectation and the teacher's approach to instruction. The Joint Task Force on Assessment of the National Council of Teachers of English (IRA/NCTE 1994) advocated that the best curriculum models included valuable assessments. Standard-based curriculum should be a listing of criterion standards in which assessment possibilities are embedded. A criterion standard is a statement listing *one* expectation of knowledge or performance that a student should accomplish to demonstrate whole or partial achievement of the more encompassing graduation standard.

Assessment is the process of gathering information that can be used to evaluate a student's achievement. By listing the numerous activities that a student must perform to complete a standard, the teacher can gather information about the criteria necessary for students to achieve a standard. The concept of curriculum can be tied to assessment by using a defined and proscribed list of descriptive verbs. It is probably not surprising that much of the dialogue pertaining to the use of language in curriculum development relates to the assessment methodology necessary to evaluate student performance. Hart (1994) contended a system of assessments should be part of the curriculum so that arbitrary tests scores are not the basis of grades. Stiggins (1994) drew curriculum and assessment together by advocating that quality performance criteria can be established only if assessment results are linked directly to instructional decision making. When merging the curriculum with the assessment process, there must be consideration for several issues, which include the following:

- The curriculum must provide known and clear criteria to those assessing and those being assessed (Wiggins 1993).
- The heart of the curriculum must be the achievement target (Stiggins 1994). If the teacher can locate in the curriculum exactly what is to be learned, the teacher knows exactly what the assessment should measure.

The type of assessment done in the classroom tends to be smaller than a standardized test. A teacher may assess a student's grasp of the rules of grammar through numerous student demonstrations of that knowledge (including writing sentences and paragraphs, speaking using correct usage, small tests and quizzes, and any other means by which students can show

their understanding) over the period of several lessons. Standardized tests, however, assess competence by asking students to answer a few questions related to a given topic during a single testing event. Traditionally most standardized tests have sought to measure only content and knowledge. However, now many state-level standardized tests seek to test student performance by asking students to write an explanation of how they solved the problem in addition to asking for the answer to the problem.

Constructing the Verb Matrix

To create criterion standards that ensure consistent response to the verbs, the number of verbs that curriculum designers use are best kept to a minimum. The fewer the number of verbs available, the greater the chance of people understanding the meaning of the criterion standard. Gagne et al. (1988), Daggett (1995) and McTighe (1995) established lists of verbs related to curriculum and assessment. Gagne et al. specified nine capability verbs that help to reduce ambiguity by using the verb as the stimulant to a performance. Daggett listed a group of verbs to describe performance activities related to each of Bloom's Taxonomy (Bloom et al. 1956) components. McTighe listed action verbs that are observable and measurable.

Each list established that verbs can be used as indicators of learning expectation or performance expectation. Stiggins (1994) referred to verbs that function as indicators as "trigger words." Here, the term *performance verb,* is used to define the verb employed at the beginning of a criterion standard that shows teachers and students alike what students have to do to satisfy the stated criteria. Performance verbs are derived from those verbs used in Bloom's Taxonomy and were further expanded upon by Daggett.

As stated previously, Daggett, McTighe, and Gagne et al. created lists of verbs that could be used as indicators for performance. Daggett's list is broken down by relationship to Bloom's Taxonomy. Each verb listed corresponds to a given level of Bloom's Taxonomy. For example, if the skill of *analysis* is to be assessed, Daggett determined twenty-six different verbs used to describe analysis activities. McTighe listed 108 action verbs, but he did not categorize the verbs in any specific context. Gagne developed five categories for a verb list, but only included a few verbs on the total list. Daggett's list of verbs is compatible with the goal of using action verbs to activate assessment possibilities within the criterion standards. Daggett's list requires people who write criterion standards to consider various components of Bloom's Taxonomy as they compose the statements.

By using verbs attached to the components of Bloom's Taxonomy, the developers of the criterion standards are reminded that they must expect students to go beyond cognitive knowledge. State standards are written with the expectation that students perform beyond memory and recall. Using Daggett's list recognizes that all of Bloom's components could be expected of students. As teachers lead students toward accomplishing standards, memorization would not be the only type of expectation placed on students. Figure 3.1 shows the components of Bloom's Taxonomy as Daggett used it with his action verb list.

Figure 3.1 BLOOM'S TAXONOMY AS USED BY DAGGETT

Knowledge
Comprehension
Interpretation
Extrapolation
Application
Analysis
Synthesis
Evaluation

There is one negative aspect of Daggett's list; it offers too many choices. Figure 3.2 shows the Daggett list. One can see from this that a person would have so many choices of verbs that the problem with clear meaning of verbs could again come into play.

Figure 3.2 DAGGETT'S LIST OF ACTION VERBS
Related to The Breakout of Bloom's Taxonomy

Knowledge Verbs						
Arrange	Identify	Choose	List	Say	Match	Underline
Reset	Tally	Select	Touch	Find	Sort	Omit
Locate	Point to	Group	Name	Recite	Label	
Show	Transfer	Write	Spell	Check	Cite	
Hold	Offer	Repeat	Pick	Tell	Quote	
Comprehension Verbs						
Alter	Convert	Qualify	Retell	Translate	Change	Expand
Render	Reword	Vary	Construct	Moderate	Restate	Transform
Interpretation Verbs						
Construe	Explain	Infer	Spell out	Annotate	Define	Expound
Outline	Account for					
Extrapolation Verbs						
Advance	Offer	Propose	Submit	Calculate	Contrive	Project
Scheme	Contemplate					
Application Verbs						
Adopt	Consume	Exercise	Handle	Use	Capitalize on	Manipulate
Devote	Exert	Operate	Wield	Mobilize	Avail	
Exploit	Ply	Put to use	Profit by	Employ	Make use of	
Put in action	Relate	Take up	Solve	Try	Utilize	
Analysis Verbs						
Assay	Deduce	Inspect	Search	Survey	Breakdown	Check
Look into	Section	Syllogize	Divide	Reason	Audit	Dissect
Canvas	Examine	Screen	Simplify	Sift	Take apart	
Include	Scrutinize	Study	Uncover	Test for		
Synthesis Verbs						
Blend	Compile	Create	Formulate	Yield	Reorganize	Compose
Develop	Generate	Produce	Build	Originate	Breed	Make
Reorder	Cause	Constitute	Evolve	Conceive	Effect	
Construct	Form	Mature	Structure	Make up	Combine	
Evaluation Verbs						
Adjudge	Award	Decree	Rank	Settle	Appraise	
Censure	Determine	Rate	Umpire	Arbitrate	Classify	
Grade	Referee	Weigh	Assay	Criticize	Judge	Reject
Assess	Decide	Prioritize	Rule on			

Adopted from *Testing and Assessment in American Schools Committing to Rigor and Relevance* by Willard Daggett. © 1995 International Center for Leadership in Education, Inc. Used with permission.

Writing the Survey

Limiting the number of verbs minimizes the semantic debate and offers a clearer vision of the meaning of verbs used in curriculum design. To create a small number of verb choices and to create definitions for the components of the taxonomy, local input is imperative. This can effectively be accomplished by conducting a survey to determine what verbs would be best to use and what the community perceives the definitions are for each component of the taxonomy. The survey can be given to teachers, administrators, students, parents, and business people throughout the school district.

The survey basically asks participants to choose a word illustration that best fits the meaning of each of the verbs in the taxonomy. Then, participants are asked to choose five verbs from the list of action verbs that they believe would be the best activity for a student to do if the student were asked to prove that he or she could do what the verb in Bloom's Taxonomy suggested. Figure 3.3 is an illustration of a survey sheet for the knowledge component of Bloom's Taxonomy. Additional samples can be found in Appendix B.

Figure 3.3 EXAMPLE OF SURVEY QUESTION USED TO DETERMINE THE VERB MATRIX

Below is the definition of *know* as stated in *Webster's New Collegiate Dictionary* (1973). Please read the definition carefully.

Know: To have direct cognition of information.

Please place a check beside the one definition that you think best fits what a student can do when the student *knows* something.

A student has direct cognition when the student . . .

___ 1. Can communicate information or complete a learning activity without reference to external sources.

___ 2. Can use memory as the only source to answer a question or complete the steps of a task.

___ 3. Can repeat information or complete steps of a process without the use of any resource other than his or her mind and body.

___ 4. None of the above statements is an acceptable illustration of the meaning of *know*.

If a student is expected to *know* something, which of the verbs below would best be used when asking the student to demonstrate that he or she *knows* the information or task process? Please circle the five verbs that you believe best illustrate the expectation to *know*.

Arrange	Identify	Offer	Repeat	Spell	Check	Label	Omit
Reset	Tally	Choose	List	Pick	Say	Tell	Cite
Locate	Point to	Select	Touch	Find	Match	Quote	Show
Transfer	Group	Name	Recite	Sort	Underline	Hold	Write

Administering the Survey

For the survey to have any statistical relevance, at least 100 people should be polled. The surveys should be sent to educators (teachers and administrators), business people, and parents in equal proportions. If one chooses to survey the entire district faculty, one should endeavor to survey an equal number of business people and parents. For example if there are 150 faculty members in a district, 150 business people should be surveyed along with 150 parents, requiring the distribution and tabulation of 450 surveys. Such a task may be too daunting in both human and material resources; therefore, a sample of 100 is adequate.

Analyzing the Data

When analyzing the survey, the surveyors must count all surveys and then find which items have been chosen by the respondents most often. The final verb matrix is built around the verbs chosen most often by respondents. The corresponding definitions are also selected in the same way. A model of a completed verb matrix is shown in Figure 3.4.

Figure 3.4 VERB MATRIX AS DEVELOPED BY SHIKELLAMY SCHOOL DISTRICT (SUNBURY, PENNSYLVANIA)

Know: A student knows when the student can communicate information or complete a learning activity without reference to external sources.
Trigger Verbs: Identify List Name State Write

Comprehend: A student comprehends when the student demonstrates the nature, significance, or meaning of information by presenting the information in his or her own words.
Trigger Verbs: Expand Restate Retell Reword Translate

Extrapolate: A student extrapolates when the student can infer values from observed information by finding and illustrating the importance of varied pieces of information that, when combined, create the observed information.
Trigger Verbs: Calculate Offer Project Propose Predict

Interpret: A student interprets when the student can use his or her own words or illustrations to express the same message and the same value judgments expressed in an original piece of information read, heard, or seen.
Trigger Verbs: Define Explain Expound Infer Illustrate

Apply: A student applies learned information when the student can utilize the information in the process of solving a problem or creating a concept.
Trigger Verbs: Relate Use Utilize Employ Demonstrate

Analyze: A student analyzes when the student can separate the various details within a piece of information and can communicate how each detail relates to other details to form the piece of information.
Trigger Verbs: Deduce Dissect Examine Break down Compare/Contrast

Synthesize: A student synthesizes when the student creates an idea by composing several parts and elements into one piece of information.
Trigger Verbs: Combine Compose Create Develop Construct

Evaluate: A student evaluates when a student can present information that supports why he or she places the value or significance on pieces of information.
Trigger Verbs: Appraise Assess Rate Judge Determine

Used with permission of the Shikellamy School District, Sunbury, Pennsylvania.

A sense of local ownership for the design of a standards-based curriculum is important, which means local input during the construction of the verb matrix. For example, the elementary teacher who constructs a matrix may want to survey his students and their parents to gather the data necessary for the matrix. The mathematics teacher in a high school may want to survey her students each year to design a verb matrix. A principal may want to survey parents and teachers to devise a matrix.

Chapter 4 describes the role of the verb matrix in the curriculum design process.

Standards-Based Instructional Plan

In the elementary level lesson that follows, note that the expected action is described by the verb used to start the statement, the performance verb. The performance verbs each relate to actions or demonstrations to be undertaken by the students. The assessment is built into the verb, the student

either will achieve the criterion standard or will not achieve the standard. Another interesting element of this lesson is that it is to take place over the course of a year.

Exposure to Literature

Adapted from material developed by Bethany Rudloff

State Standard(s) to Be Assessed

State standards include the following:

- Demonstrate competence in the general skills and strategies for reading a variety of literary texts.
- Demonstrate an understanding of the nature and function of the English language.
- Demonstrate competence in the general skills and strategies of the writing process.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

Following are ways in which the teacher can discern student perceptions of a particular topic or content area.

- Teacher reads excerpts from each of the following: a poem, a play, a short story, and a novel.
- As the selections are being read, students identify on paper if each is fiction or non-fiction.

Criterion Standards to Be Assessed

As discussed in this chapter, the performance verbs that begin each criterion standard provide a focus for instruction and assessment.

- Use reading skills.
- Identify literature as it is expressed in poetry.
- Identify literature as it is expressed in a play.
- Identify literature as it is expressed in a short story.
- Identify literature as it is expressed in a novel.
- Define fiction in relation to class readings and discussions.
- Compare and contrast poetry, a play, a short story, and a novel.

Student Learning Activities

In the learning activity described below cognitive development is enhanced through social interaction.

- Students are divided into five groups.
- The terms fiction, poetry, play, short story, and novel are assigned "jigsaw" style to the five groups.
- Each group brainstorms a working definition and example of the type of literature their group was assigned.
- Each group presents their definition to the class, making modifications in response to class discussion.
- Each group creates a mobile that shows the elements of their type of literature to be hung in class.

Formative Assessment

Through information gathered during this phase of the lesson, the teacher can determine if more time needs to be spent on the learning activities or if other remediative measures should be taken.

- The teacher monitors the group discussion and directs the student groups and clarifies instructions.
- The teacher observes and directs large group discussion.

Summative Assessment

Each student chooses his or her favorite work of literature and writes a paragraph that follows the conventions of that form and the style of the particular author.

Criterion Standard Rubric

In this criterion rubric, as well as in all of the others in this book, performance verbs *(in italics)* are used so that the teacher can at once show that he or she is teaching to standards and that the student is or is not during this lesson evidencing attainment of the given standards.

- The student *used* reading skills. YES or NO
- The student *identified* literature as it is expressed in poetry. YES or NO
- The student *identified* literature as it is expressed in a play. YES or NO
- The student *identified* literature as it is expressed in a short story. YES or NO
- The student *identified* literature as it is expressed in a novel. YES or NO
- The student *defined* fiction in relation to class readings and discussions. YES or NO
- The student *compared* and *contrasted* poetry, a play, a short story, and a novel. YES or NO

Chapter 4

Designing and Using the Standards-Based Curriculum

Designing the standards-based curriculum at the district level so that it can be put to meaningful use in the classroom involves the application of some basic tools that simplify the system, but the primary action involved in this work is the thought process. To do the work of aligning curriculum to standards, analytical, interpretive, and creative thinking is required. It follows then that to do this well takes practice. An understanding and working knowledge of the CAST Dialogue Process (see chapter 2) and the Verb Matrix (see chapter 3) are important prerequisites to writing criterion standards. The dialogue process provides a means for establishing consensus and building teamwork. The decisions that are made there have great potential effect on what the curriculum will ultimately look like. Designing curriculum that is standards-based using criterion standards results in having an articulated list of performance expectations that define how curriculum and instruction are directly tied to standards. In addition, within the criterion standards themselves are the means for evaluating whether or not the standards have been met by students.

The concept of designing criterion standards from state standards is in agreement with the work done by Wiggins and McTighe (1998). In defining a process they call backward design, they recommend identifying

desired results as the first step. Because standards are statements that describe the desired results, looking at standards is the first step. In the second step, McTighe and Wiggins contend that there must be a determination of what evidence will be expected to prove that the desired result has been achieved. Criterion standards provide the statements of what the evidence must be. Thirdly, McTighe and Wiggins say that learning experiences and instruction can only be designed after one knows the results and the evidence necessary to support achievement of the results. After criterion standards are composed, teachers must decide how they will teach students to demonstrate completion of the criterion standards. Figure 4.1 expresses the relationship between the graduation standard and the criterion standards.

Figure 4.1 CRITERION STANDARDS AS BYPRODUCTS OF GRADUATION STANDARDS

Pennsylvania *(Standard):* Listen to others
Third grade *(Benchmark):* Listening without interrupting; asking clarifying questions; distinguishing relevant information, ideas, and opinions from those which are relevant; and taking notes when prompted
(All statements below are *criterion standards.)*

1. Employs *(performance verb)* protocol for group discussion.
   a. Utilizes *(performance verb)* rule of one person speaking at a time.
   b. Demonstrates *(performance verb)* allowing all people the opportunity to speak.
   c. Employs *(performance verb)* eye contact with speaker while listening.
   d. Utilizes *(performance verb)* the body signals of listening.
   e. Demonstrates *(performance verb)* proper manners when speaker makes an error.
2. Composes *(performance verb)* questions from the oral presentation.
3. Offers *(performance verb)* questions to the speaker.
4. Retells *(performance verb)* ideas presented by the oral source.
5. Explains *(performance verb)* what was presented by the oral source.
6. Identifies *(performance verb)* reality from fantasy in the oral presentation.
7. Determines *(performance verb)* reality and/or fantasy.
8. Identifies *(performance verb)* facts and opinions.
9. Distinguishes *(performance verb)* facts from opinions.

Satisfying a criterion standard is indicative of a student attaining an element of the graduation standard. The student either can or cannot listen to something and *retell* what was heard. The student either can or cannot *employ* each component of the protocol for group discussion, which is

part of attaining the graduation standard. However, achievement of a standard cannot be reliably determined unless students are required to demonstrate in numerous situations, over a period of time, or within the complexity of the general expectations of the curriculum that they can do what the criterion standard asks of them. Criterion standards must be written with enough information so that the teachers using the standards know exactly what performances to assess.

Figure 4.2 shows the method by which criterion standards are derived using a process called the Standards Assessment System. With this process, local districts and schools define what local students must do in order to accomplish standards in their school. Educators and members of the community draw upon their own experiences, their knowledge of local curriculum, and their understanding of what students need to know and be able to do in order to meet the state standards.

Figure 4.2 CONSTRUCTING CRITERION STANDARDS USING THE STANDARDS ASSESSMENT SYSTEM

Step One: Review and evaluate the state standard and its benchmarks.

Step Two: Determine ways students can demonstrate that they have achieved the standard.

Step Three: Choose a performance verb from the appropriate level of the matrix with which to begin the criterion standard.

Step Four: Review criterion standard and determine at what grade level the criterion standards should be achieved.

The number of criterion standards created and their level of specificity is up to those writing the standards. However, it is important to remember that one of the central components of aligning standards is making those standards easier to use in the classroom. Too much of even a good thing circumvents the purpose. A workable example of what students need to do is: "students must employ protocol for group discussion;" instead of: "teach students the steps of the protocol for group discussion." Using the Verb Matrix as a tool for writing criterion standards calls attention to what level of Bloom's Taxonomy students are expected to function to meet the criterion standards. Writers of criterion standards decide what level of thinking is required for the student to demonstrate achievement of the standard. They make this decision by reading the definition of the key verbs and then deciding what basic things a student should be able to do to achieve the standard.

What Bloom's Taxonomy has made evident to educators for many years is that learning is not just the memory and recall of information but that students learn best by exercising the higher levels of thinking. Educators should keep in mind that knowledge, comprehension, extrapolation, and interpretation alone probably will not demonstrate full achievement of a given standard. By thinking about the association of the taxonomy to the completion of standards, it becomes easier to see that by requiring students to perform at all levels, the students will have a greater chance of success in completing the standards and of growing as learners. Educators can check to see if all or most of the levels of the taxonomy are touched upon by referring back to the Verb Matrix to see if the criterion standards constructed range in their level of complexity. If they do not, adjustments can be made.

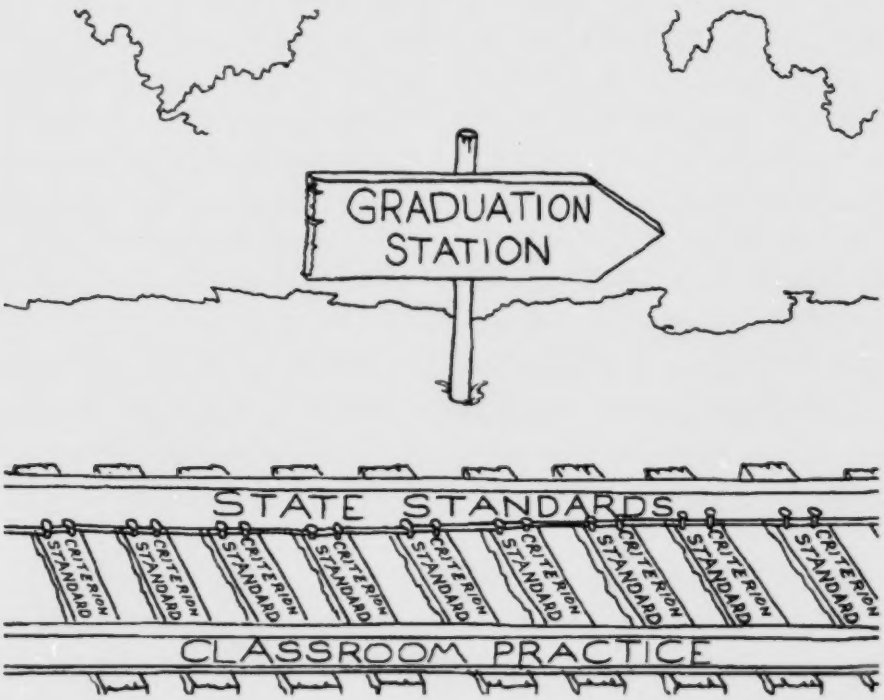
When each idea about how a student can evidence achievement of a particular state standard has been translated into a criterion standard, educators should then reflect upon the following questions:

- Does the collection of criterion standards as they are now written require students to do more than memory and recall work?
- If a student achieves each of the criterion standards as set forth will that mean that he or she has demonstrated achievement of the state standard?

The performance verb chosen should make what the student must know or be able to do readily apparent. Because learning is a continuum of experience, it makes sense that teachers communicate both horizontally and vertically about what students need to know and be able to do to prepare for the next level of study and for life. Thus, the completion of standards requires a composite view of learning. The development of a standards-based model means that each grade has a part in the achievement of the standards. The groundwork for achieving standards in the twelfth grade begins in kindergarten and even before. Consequently, each grade needs a list of criterion standards to focus with an eye to the future, toward graduation. A grade-by-grade articulation of criterion standards has the potential to dispel the misconception that only teachers at grade levels where testing takes place are responsible to prepare students to meet standards.

The process of writing criterion standards is about defining the components of learning and possible demonstrations of that learning that are part of achieving the graduation standard. Recognizing that graduation standards require a continuum of performance, educators and non-educators alike can look at criterion standards and see what is expected of a student

at each point in his or her education. Criterion standards are tie two seemingly divergent concepts together—grades and state standards.



Writing Criterion Standards

While individual teachers can most certainly use the steps in the Standards Assessment System to help derive meaning from state standards documents, criterion standards written as a collaborative process in which all stakeholders take part have the most value and applicability. With this in mind, a team of persons must be formed to write the criterion standards. The objective of the writing team is to produce a document that defines exactly what students are supposed to know and be able to do. It is a framework for the local district's or school's curriculum and provides evidence that the system is teaching to standards. It can be used to gauge student achievement and signal when students are not performing to expectations so that remediation can be undertaken. The result of the writing and design effort will help demonstrate to the community and the state that the persons undertaking this process understand and take seriously the responsibility to prepare students to meet standards. It is crucial for persons serving on the writing team to be cognizant of the fact that the standards have

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been determined, and it is the team's role to decide how the district, or school, will address the standard.

Building a Team

Selecting teams of individuals to do the writing is very important. Each team must have a writing facilitator, who typically is a teacher, curriculum coordinator, a supervisor of a respective academic department, a principal, or some other designated individual chosen by the administration. The leader's first responsibility is the selection of the group of persons who will write the criterion standards. Inclusive representation is an important consideration. Where the district is relatively small, all faculty members can participate in the process. In large districts, however, it is impractical for all faculty members to be made part of the actual writing process.

Writing teams should include:

- a representative from every grade level and/or academic discipline;
- administrators from each divisional level of the district;
- at least one guidance counselor (social workers and specials teachers may also be included or may consult on the results of the process); and
- one or two parents and/or business persons.

Persons who served on a dialogue team (see chapter 2) can go on to serve on the writing team; however, for practicality's sake, writing teams should be smaller than dialogue teams. Subgroups formed from the dialogue teams can do the actual writing and then the whole group can reconvene to review the writing.

Characteristics of an Effective Writing Team

Characteristics of an effective writing team are the same as those of any effective team. The working dynamic that drives this process requires that team members be cooperative and willing to recognize that debate and challenges to each other's beliefs are not negative. The team members must be able to put aside personal feelings and individual agendas in order to produce the best possible product and compromise with each other. The team must function as one unit, but also be representative of all stakeholders.

It is important for people who have negative feelings about standards to work alongside those who have a more positive view. Those who are neutral on the subject should also be included. All three types are very important to the design process because each must be heard from so that

together they create a balanced view and a balanced discussion in arriving at the criterion standards.

The Textbook Dilemma

Traditionally, textbook selection committees had a great deal of influence over what was taught and what students learned, because the materials they selected often became the de facto curriculum. It is not surprising then that some people want to use textbooks as a basis for writing the criterion standards. However, the use of the textbook is the wrong way to develop the criterion standards for the following reasons:

- The developed criterion standards may appear to be an outline of a textbook. This means that the local district uses the text as its curriculum as opposed to having a curriculum that uses the standards as its focus, thereby forfeiting the opportunity the standards system provides to accommodate local priorities.
- Writers likely try very hard to write criterion standards based on an entire text as opposed to focusing the criterion standards on what students must learn and demonstrate in order to show achievement of standards.
- Participants rely on the text to define criterion standards instead of relying on their experience and expertise.
- Using grade- or level-specific texts hampers both horizontal and vertical efforts at curriculum integration.

Once criterion standards are defined *then* textbooks can be used to determine if certain concepts are missing or if the text must be mentioned in the process of writing a particular criterion standard. The textbook plays a less significant role as teachers exercise their professional skills and utilize a wide variety of instructional activities aimed at bringing about student success. The same is true with assessment as the assessment process becomes less formal and summative with paper-and-pencil testing. Teachers choose and allow for students to demonstrate proficiency in a wide variety of ways that more adequately allow for individual student differences. Assessment also becomes much more of a process and less of an event. Instruction and assessment becomes on-going and intertwined. There is no longer a need for instruction to be put on hold while one tests. Articulating criterion standards makes it possible to continually assess while teaching the standards-based curriculum.

Using Criterion Standards

Once graduation standards have been defined in terms of criterion standards they can be used many ways and by many different groups, including:

- analyzing learning expectations using Bloom's Taxonomy,
- planning lessons,
- communicating expectations,
- diagnosing student learning difficulties,
- testing, and
- enhancing teacher performance.

Analyzing Learning Expectations

Using the relationship of action verbs to the level of learning on Bloom's Taxonomy (Bloom, et al. 1956), each criterion standard is counted as directly relating to one level because of the performance verb that is used. Analysis of the way the criterion standards fit with Bloom's Taxonomy has even greater credibility than what is shown here because of the use of the Verb Matrix through the process. An illustration of the results of such an examination is shown in Figure 4.3. This type of analysis can help teachers to see strengths and problems in preparing students for the standards.

In the standards from Massachusetts, for example, analysis of the areas of language arts, mathematics, and science, found an emphasis on *knowledge* and *application* in language arts, *application* in mathematics, and *knowledge* and *analysis* in science. Figure 4.3 shows the results of this analysis.

Figure 4.3 STANDARD AS A SERIES OF DESCRIPTIVE STATEMENTS

Number of standards related to each level of Bloom in Massachusetts standards:

Bloom's Level Taxonomy	*Language Arts*	*Mathematics*	*Science*
Know	43	14	30
Comprehend	1	11	0
Interpret	4	4	15
Extrapolate	1	1	3
Apply	28	55	12
Analyze	20	11	24
Synthesize	10	25	8
Evaluate	1	8	7

The assessment expectations are obviously strong in those categories with high numbers. However, one can note the lack of *comprehension, interpretation,* and *extrapolation* expectations in language arts standards. Does this indicate that anything is wrong with Massachusetts' standards? Not necessarily, but the information provides clear-cut data for a group to discuss the situation in terms of standards. Analyzing learner expectations can be done by an individual teacher or a district. Teachers could use this type of analysis to diagnose potential gaps in their own curriculum situation. Only by casting state graduation standards as criterion standards can this process be done.

The Record of Knowledge

Traditional grading systems do not really tell the public what students know and can do. Many attempts have been made to reform traditional grading systems and most have failed because there seems to be a need to give and receive As and Bs or 85s and 90s. Perhaps this happens because these terms or numbers serve to rank students.

The true communication of students' abilities requires a reporting system that is performance- or standards-based and actually tells parents, employers, and colleges what students know and can do. The way this is accomplished is up to the locality, but it may entail portfolios, performance checklists, projects, work samples, and rubrics. By whatever means, the key is to establish a method of communicating what the graduate actually can do. To say that the student received an A or C in mathematics does not really tell much. Using criterion standards as a form of assessment creates a description of what students can do. The example shown in Figure 4.4 of the performance checklist of an eighth-grade science student, shows how criterion standards can be used as the descriptor for assessing what a student can and cannot do. In the example, the teacher assessed students on their abilities to carry out experiments within a laboratory situation. The criterion standards were written as part of the standards-based curriculum. The checklist documents several opportunities for students to take part in laboratory experiences.

Figure 4.4 PERFORMANCE CHECKLIST: AN ALTERNATIVE TO THE TRADITIONAL REPORT CARD

Grade 8 Assessment of Laboratory Experiences

Criteria	Yes	No
Defines variables.	☐	☐
Defines controls.	☐	☐
Identifies reason for variables.	☐	☐
Identifies reason for controls.	☐	☐
Identifies need to determine why a test must be given.	☐	☐
Identifies inappropriate problems.	☐	☐
Identifies the correct solution to the problems.	☐	☐
Identifies a possible solution but not proper solution.	☐	☐
Utilizes the primary source of information.	☐	☐
Relates need to seek supportive evidence to primary source.	☐	☐
Uses complete sentences in lab reports.	☐	☐

Lesson Planning

The established curriculum should be the root of lesson planning. In other words, all instruction should come out of the written curriculum. By using a standards-based curriculum designed with criterion standards, the teacher is able to design lessons directly related to state and local standards. See chapter 5 for additional standards-based instructional plans and chapter 6 for a complete discussion of lesson planning with criterion standards.

Communicating Expectations

One of the most obvious ways to use the criterion standards is to publish them for the entire community by placing them on the school's or district's Web page and in print publications such as newsletters, parent handbooks, and curriculum guides, and these can be distributed to parents and business people in addition to teachers and administrators. A district-wide curriculum map is useful in communicating with staff and the public (see chapter 6). A glance at a curricular map gives interested parents and other members of the public a basic knowledge of the educational offerings of the district and expectations for students. It should also represent a profile of expectations for graduates and for each grade along the way.

An effort should be made to call parents' attention to the standards and ways that they can use the standards to further their children's learning by monitoring their progress against the articulated criterion standards. In

addition, these statements can be used as a tool to further parent/teacher communication. When parents and interested community members read them, they know what is expected of students.

Diagnosing Student Learning Difficulties

By distilling voluminous state-standards documents into criterion standards, teachers have a ready checklist to use as a diagnostic tool. Criterion standards itemize what students know and can do, and they make clear what they cannot do. This allows the professional educator to identify potential problems and institute measures to remediate those problems. As diagnostic tools, criterion standards can be used in student conferences, parent conferences, and in discussion or analysis of state-level tests.

Student Conferences

First, the teacher can use the criterion standards in student conferences. If the students are fully aware of what they are supposed to know and be able to do, the teacher can conference by using the statements as a way to discuss with students their strengths and deficiencies. The teacher can literally point to specific criterion standards and tell the child if he or she is meeting the standard.

Parent Conferences

The same thing can be done in parent conferences. In many school districts teachers use the appropriate criterion standards to inform parents of what their children are doing. The criterion standards are a checklist of items to discuss with the parent, and the teacher points out what the student can do, is getting close to doing, and is not capable of doing. This way, parents have more than a grade to use as a gauge for their children's success.

State-Level Testing

The third way that teachers can use the criterion standards as a diagnostic tool comes while preparing students for state-level testing. If teachers monitor and assess students in accordance to the criterion standards, they have an abundance of evidence that tells them whether students will achieve on the test or not. For example, if the teacher has ascertained that a student knows and can do almost all things on the criterion standard list, then the teacher can be assured that the student will achieve on the assessment test. Conversely, if the teacher has determined that the student shows decided deficiencies, the teacher has a strong case for predicting that the student will have difficulty on the state assessment.

Criterion-Referenced Testing

Criterion-referenced tests are assessment tools that test only those concepts, facts, and ideas (the criteria) that students are informed will be tested. Burke defines criterion-referenced tests as standardized assessments that "are designed to compare a student's test performance to learning tasks or skill levels" (1994, 17). The tests are most often designed by teams of teachers with input from administrators. Districts can use criterion standards they have created to devise criterion-referenced assessments. They can then test the students and gather data to measure the success of the curriculum. Such tests should be devised to assess the achievement of criterion standards exactly as criterion standards were written. Figure 4.5 provides a sample fifth-grade reading test on which the achievement of criterion standards can be assessed.

Figure 4.5 STANDARDS AS A SERIES OF DESCRIPTIVE STATEMENTS

Uses prior knowledge in reading a story.
Writes inferences about the title of the story.
Lists valid reasons why the author wrote the story.
Determines appropriate inferences from the picture.
Predicts a setting correctly.
Employs clues to support inferences of a character's whereabouts.
Infers correctly what a character is doing.
Relates clues to support inference of what a character is doing.
Infers correctly the setting of a character.
Utilizes clues to support the inference of the character's setting.

The test provides the means to gather data on each student, but also does something else for the district curriculum. It reports how well the students *as a group* achieved on the assessment.

An ongoing assessment program in the classroom can be criterion-based if criterion standards are prevalent. Teachers cannot afford the time to stop instruction to conduct assessment activities. When teachers and students enter into the instructional process with an understanding of the standards to be addressed and the procedures for assessment, teachers are encouraged to utilize their professional judgment concerning student's abilities on an ongoing basis. Therefore, criterion-referenced assessment can take place everyday.

Teaching to the test is not bad. In fact, if assessments are practical and appropriate, teaching to that assessment is a requirement. Frequently in

the past, teachers decided what they were going to teach and then tried to design a test that would measure the success of that instruction. Teachers should instead design the assessment procedures informed by and reflecting criterion standards before instruction occurs. Again, this is in sync with Wiggins and McTighe's (1998) backward planning concept. This procedure allows for student activity on a daily basis to prepare for the test. Consequently, there are no surprises at test time.

By giving students criterion-referenced assessments based on criterion standards, the teacher tests material taught in the curriculum on a regularly sustained basis. In addition, the teacher tests without paper and pencil. The regular activities of the class are used as a means of determining if a student is or is not reaching a criterion standard.

Reporting the results of criterion-referenced assessments must become more narrative in nature. A simple A or B, P or F, or 75 or 90 percent cannot truly communicate what a student knows or can do. Chances are that criterion standards will be scored on a daily basis by handheld computers or card readers as technology increasingly finds its level in the classroom. Students cannot meet a standard half or three-quarters of the way. However, they may be half or three-quarters of the way toward meeting a standard. Rubrics can be designed for grading purposes that give criteria in the categories of "does not meet the standards," "meets the standards," or "exceeds the standards."

Assessment results should be utilized to (1) report progress to students and parents, (2) communicate a student's abilities to subsequent teachers, (3) inform businesses and post-secondary institutions of a given student's abilities, and (4) guide further instruction. Reporting progress to students and parents serves to keep them apprised with respect to where the student stands in the instructional process. Students, teachers, and parents all should have a basic understanding of where the student is at the beginning of the process and where he or she should be at the conclusion of instruction. Given these two landmarks, progress reporting becomes an analysis of the progress the student has made from point A toward point B.

In most cases, students move on to subsequent teachers and/or instructional processes, making the post-assessment from one level become the pre-assessment for the next. This allows the teacher of the next phase to get a clear picture of the student's strengths, weaknesses, and interests, enabling that teacher to plan appropriately. Since the criterion standards are written on a continuum basis from grade to grade and course to course, the teacher knows exactly how to appraise students at the beginning of a particular grade or course. The teacher goes to the criterion

standards that should have been achieved and then determines if the student is ready for the next level or phase of instruction.

Testing

With the advent of handheld computers, teachers will be able to keep records of incidental student activities. In this way, assessment will not intrude upon learning. As a student demonstrates performance of one of the criterion standards, the teacher can note and file it electronically. At the end of a grading period, the teacher can then call up the data and note, for example that a student effectively performed a criterion standard on five separate occasions.

Enhancing Teacher Performance

Teacher supervision can be a much more meaningful process when standards are used to guide the supervisory process. Assuming the real intent of supervision is the improvement of the instructional process and the professional growth of teachers, supervisors can utilize standards to establish a common ground among teacher, mentor, and supervisor. The role of supervision then becomes one of assisting the teacher to become adept at bringing students up to the criterion standards assigned to that course, unit, or lesson. This, of course, requires the supervisor to be thoroughly versed in standards, ways and means of teaching to these standards, and the assessment process. To impose the old-fashioned supervisory model (designed to weed out teachers) is counterproductive and a waste of time and resources. Time and attention need to be on the end results: Can students demonstrate their accomplishment of criterion standards?

With criterion standards in place, teacher evaluation can become a matter of determining the teacher's proficiency in getting students to the accepted levels of success. How teachers do their jobs becomes less important than if they are assisting students to reach the standards. Consequently, forms used for observation and evaluation can be designed in a manner that reflects standards-based education.

A standards-based curriculum constructed using criterion standards makes teacher supervision more specific and practical. When an administrator observes a teacher using a standards-based curriculum, the administrator can observe from the perspective of the standards. The observer can determine very early in the lesson if the teacher is teaching to the curriculum because the lesson plan and the early part of the lesson should cite the criterion standards being used in the lesson.

A well-recognized and effective way of evaluating teacher performance is through an observation process that includes a pre-conference, an observation, and a post-conference.

In the pre-conference, the teacher should do the following:

1. Articulate the standard and criterion standards that are attacked in the lesson.
2. Articulate assessment opportunities in which students demonstrate progress toward achievement of criterion standards.

During the lesson, certain elements should be evident:

1. Does the teacher articulate the standards and criterion standards to be attacked in this lesson?
2. Is it evident that the lesson is related to the standards and criterion standards?
3. Does the teacher offer students the opportunity to demonstrate progress toward achievement of the standard or criterion standards through active learning?
4. Does the teacher define the standards typically found in other academic disciplines that are required in this lesson? (For example, in a math class does the teacher define the need to follow the "listen to others" standard? Or, in a science lab report does the teacher tell students that they must "use complete sentences"?)
5. Does the teacher establish assessment opportunities for students to demonstrate accomplishment of criterion standards?
6. Are criterion standards for the course visually evident?

The post-conference should focus on all aspects of the standards-based curriculum and instruction:

1. The observer should focus on each of the questions and tell the teacher if they have completed a standards-based approach.
2. The observer should ask the teacher to explain her ideas for a summative assessment that will be given at some point concerning the standards.

Each school district usually has its own observation tool. If the questions listed above are made part of the tool, the teacher and observer have a view on what is happening in relation to standards. Also, teachers can self-evaluate with these questions. By reviewing the questions before and after teaching a lesson, teachers can gauge their own approaches to teaching in the standards-based mode.

Academic Freedom

Frequently, academic freedom becomes a topic of discussion when curriculum is written because, in a sense, by so doing teachers are being told what

they are expected to teach. By using criterion standards, teachers have the ultimate of academic freedom. First, they are written in a democratic manner and all who wish are allowed to make input to the process. Second, the process simply lays out the realistic goals for students. If students are to become contributing, productive members of society, they need to know the standards expected of them.

In a standards-based educational process, academic freedom is actually enhanced. The freedom is in *how* one teaches not *what* one teaches. Schools cannot afford to allow teachers to teach whatever content they want unless the content contributes to the achievement of criterion standards. This process does, however, encourage teachers to teach in a variety of ways.

Covering the text or material is no longer the measurement of teacher accomplishment. Rather, the goal is to have students demonstrate that they have acquired the desired knowledge and skills. How teachers get students to this point is, within reason, a matter of professional choice and judgment.

Standards-Based Instructional Plan

Criterion standards should show a pattern of learning that leads a student from basic knowledge to a use of that knowledge in practical situations. When a student can do this, all can be assured that the student has achieved the intent of the standards. In the high-school lesson plan Governmental Powers, one can see the upward reaching nature of the criterion standards. By examining the performance verbs used, one can easily see that this lesson requires the student to function on several levels.

Governmental Powers

Adapted from material developed by Michele Weir

State Standard(s) to Be Assessed

State standards include the following:

- Understand the concept of a constitution, the various purposes that constitutions serve, and the conditions that contribute to the establishment and maintenance of constitutional power.
- Understand the major characteristics of systems of shared power and of parliamentary systems.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

During this phase of the lesson, a teacher may be able to obtain all the information he or she needs as to what student know about a topic through discussion.

- The teacher may pose the open-ended question: What are some specific things you think of when you hear the word "government"? to begin a whole class discussion.

Criterion Standards to Be Assessed

Having established criterion standards takes the guess work out of interpreting state standards and frees teachers to put their professional expertise to bear in designing learning activities, assessments, and instructionaal strategies that allow students to show what they know.

- Define government.
- Identify the three branches of government.
- Explain checks and balances.
- Explain separation of powers.
- Illustrate two powers within each of the three branches of government and state a personal relevance.

Student Learning Activities

The student learning activities allow students to gather and manipulate information to make meaning of the material for themselves. Once they have internalized the meanings of the concepts on which these activities focus, they are able to apply that knowledge to authentic, real-world situations.

Activity 1

- Students work in groups to produce a definition of "government." From those definitions, the whole class comes up with a definition.

Activity 2

- Students read about the three branches of government. When finished, they list each branch and what it deals with.

Activity 3

- Students work in groups to discuss what might happen in the United States government if there were only one branch and if each branch shared all governmental powers.
- At the end of the discussion, the class mutually defines the terms "check and balances" and "separation of powers" and then list the powers of each of the three branches of government.

Activity 4

- Students receive a chart divided into the three branches of government with the powers of all three listed and mixed together. From those, students place each power with its proper branch.

Formative Assessment

For each of the activities described above the teacher may employ the following means to judge student progress.

- Activity 1—Monitor group discussions
- Activity 2—Collect and review student lists
- Activity 3—Monitor discussion
- Activity 4—Graded quiz on the branches of government and separation of powers

Summative Assessment

Students are divided into four groups (Executive—one or two students; Legislative—House of Representatives should have three times as many members as those being assigned to the Senate; Judicial—should have an odd number of students, at least three) in the proportions that would mirror membership of each branch. The teacher offers three ideas for the class to create and pass into law. After the bill has been passed (or vetoed), each group will give a presentation describing their role in U.S. government.

Criterion Standard Rubric

This lesson provides a number of opportunities for students to demonstrate their attainment of the criterion standards. Students, teachers, parents, and potential employers can see from the following information precisely what a student knows and can do in a way traditional methods cannot show.

- The student *defined* government. YES or NO.
- The student *identified* the three branches of government. YES or NO.
- The student *explained* checks and balances. YES or NO.
- The student *explained* separation of powers. YES or NO.
- The student *illustrated* two powers within each of the three branches of government and *stated* a personal relevance. YES or NO.

Chapter 5

Instructional Plans Based on Criterion Standards

Every classroom teacher can and should use standards as the basis for his or her instructional plans; criterion standards are the means through which this can be accomplished. Each component of the instructional plan relates directly to state standards as they have been articulated through criterion standards. The student learning activities, assessments, and criterions standard rubric work together to help define an instructional strategy that is designed with a specific set of guidelines and criterion standards. It is up to the classroom teacher to determine through what means instruction will be provided and how knowledge will be demonstrated. The instructional plans found here, and at the end of the other chapters, exemplify an easy-to-use format for developing instructional plans.

Each instructional plan has seven elements.

- *State Standards to Be Assessed*—these lessons present representative state standards to give the reader an idea of the material from which criterion standards and the lesson plans themselves can be derived.
- *Pre-Assessment*—deals with outlines strategies that teachers can use to determine student initial understanding of a given topic. Through pre-assessment questioning or activities the teacher is

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able to gauge the level of understanding of pertinent vocabulary or concepts that are integral to the lesson and make allowances for students' grasp or lack of understanding of preliminary material.

- *Criterion Standards to Be Assessed*—these are derived following from the state standards by constructing a verb matrix (see chapter 3). It is important to be sure that higher-level thinking skills are exercised and measured.
- *Student Learning Activities*—these tasks are designed as a means for the students to gather information or work with information that they had previously gathered in a new way. It is through working in this way that students can make personal meaning from the material and transfer that knowledge to real-world situations.
- *Formative Assessment*—these are ways for teachers to evaluate student understanding in the midst of student discovery, hopefully without interrupting learning.
- *Summative Assessment*—after completing a unit of study, students are given the opportunity to show all that they know and have learned by engaging in a meaningful exercise. Such assessments should promote transfer of skills and knowledge across content-area delineations whenever possible.
- *Criterion Standard Rubric*—here the teacher can indicate whether or not the student has evidenced mastery of the criterion standard through the pre-assessment, student learning activities, and summative assessment by circling yes or no. Some lessons offer a point scale where the student can receive more points for demonstrating higher-order thinking skills than he or she does for displaying lower-order skills.

Each instructional plan is but one opportunity for students to demonstrate their attainment of a state or criterion standard. Students must be provided with multiple chances to meet standards throughout the course of their K-12 school careers.

Subject areas covered include foreign language, language arts, mathematics, science, and social science. Teachers may use these as examples upon which they build their own lessons or use the lessons as they are presented here.

Foreign Language

The Spanish Alphabet

Adapted from material developed by Eve Lyash

State Standard to Be Assessed

- Use the target language to engage in conversation, express feelings and emotions, and exchange opinions and information.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

The teacher opens discussion by asking the following questions. How many letters are there in the English alphabet? How many letters are there in the Spanish alphabet?

Criterion Standards to Be Assessed

- State the Spanish alphabet.
- Identify the letters in the Spanish alphabet that are different from those in the English alphabet.
- Identify the letters in the Spanish alphabet that are pronounced differently from those in the English alphabet.
- Demonstrate pronunciation skills in Spanish by correctly pronouncing the alphabet.
- Write words correctly in Spanish.

Student Learning Activities

- Each student is assigned one letter or phoneme from the Spanish alphabet and one from the English alphabet.
- The student creates a storyboard in which the Spanish letter introduces himself or herself to his or her English counterpart and vice versa.

Formative Assessment

- The teacher may employ a checklist to monitor students' progress on their storyboards, making sure students are on the right track and giving direction and correction when necessary.

Summative Assessment

Each student orally presents the conversation between the two personified letters depicted on his or her storyboard.

Criterion Standard Rubric

- The student *stated* the Spanish alphabet. YES or NO.
- The student *identified* the letters in the Spanish alphabet that are different from those in the English alphabet. YES or NO.
- The student *identified* the letters in the Spanish alphabet that are pronounced differently from those in the English alphabet. YES or NO.
- The student *demonstrated* pronunciation skills in Spanish by correctly pronouncing the alphabet. YES or NO.
- The student *wrote* words correctly in Spanish. YES or NO.

Language Arts

Persuasive Writing

Adapted from material developed by Cheryl Yoder

State Standard to Be Assessed

- Demonstrates competence in the general skills and strategies of the writing process.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

- Students e-mail one fact to a partner.
- Student e-mail one opinion to a partner.
- Students write a paragraph of four or more sentences explaining why homework is a "necessary evil."

Criterion Standards to Be Assessed

- Identify a statement as fact or opinion.
- State one's opinion clearly in a single sentence.
- List three reasons supporting that opinion.
- Organize reasons in order of their importance.
- Compose a logical paragraph of four or more sentences, stating and supporting an opinion.

Student Learning Activities

To provide evidence that students are working toward state standards teachers can choose one of the following activities.

- As a class, students write a paragraph to the parent group, stating where they should go for a field trip, and citing three reasons why they should be allowed to take the trip.
- Students write to persuade peers to vote for them in a mock election.
- Students choose either more recesses or less homework and write one or two paragraphs, using three or more reasons that support their choice.

Formative Assessment

Teachers may:

- Collect and assess student first drafts of paragraphs.
- Conference individually with students concerning how to improve their paragraphs.
- Note on a checklist which criterion standards have been satisfied by the first draft and communicate this to the student during conferences.

Summative Assessment

The students write a "letter to the editor" of a local newspaper expressing their opinion about a recently reported news story. They should support their opinion with three reasons based on facts.

Criterion Standard Rubric

- The student *identified* a statement as fact or opinion. YES or NO.
- The student *stated* his or her opinion clearly in a single sentence. YES or NO.
- The student *listed* three reasons supporting his or her opinion. YES or NO.
- The student *organized* reasons in order of their importance. YES or NO.
- The student *composed* a logical paragraph of four or more sentences, stating and supporting an opinion. YES or NO.

Literary Elements

Adapted from material developed by Cheryl Yoder

State Standard(s) to Be Assessed

- Demonstrate competence in speaking and listening as tools for learning.
- Demonstrate competence in general skills and strategies for reading a variety of literary texts.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

As a class students share stories about their vacations, identifying the characters, setting, plot, and ideas in each story.

Criterion Standards to Be Assessed

- Identify the character, setting, plot, and ideas within two texts.
- Compare the literary elements of character, setting, plot, and ideas.
- Contrast the literary elements of character, setting, plot, and ideas.
- Examine how character, setting, and plot are intricately connected.

Student Learning Activities

- After hearing *The Three Little Pigs* and *The True Story of the Three Little Pigs,* students compare and contrast the characters, settings, plots, and ideas using a Venn diagram.

Formative Assessment

Teachers may:

- Mark a checklist while monitoring students' shared stories.
- Assess Venn diagrams entries.

Summative Assessment

- Students rewrite the story of the *Three Little Pigs* using characters from another fairy tale.
- Students analyze how changing the characters in the story affects the plot.

Criterion Standard Rubric

- The student *identified* the character, setting, plot, and ideas within two texts. (10 points)
- The student *compared* the literary elements of character, setting, plot, and ideas. (25 points)
- The student *contrasted* the literary elements of character, setting, plot, and ideas. (25 points)
- The student *examined* how character, setting, and plot are intricately connected. (40 points).

Mathematics

Problem Solving

Adapted from material developed by Bethany Rudloff

State Standard(s) to Be Assessed

- Understand the general nature and uses of math.
- Effectively use a variety of strategies in the problem-solving process.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

Here a tool such as a pre-test or quiz might be used to measure initial student understanding.

- Assign worksheet with computation problems involving addition, subtraction, multiplication, and division of whole numbers. Collect and check worksheet.

Criterion Standards to Be Assessed

- Calculate answers to addition, subtraction, multiplication, and division problems.
- Identify what is being asked in a word problem.
- Name three components of a word problem.
- Examine information in a word problem to decide how to solve it.
- Develop a word problem.

Student Learning Activities

- Play games at the board using addition, subtraction, multiplication and division problems.
- The teacher verbally gives examples of word problems, and students must decide what is being asked.
- The class brainstorms a list of words that indicate specific mathematical operations.
- In small groups, students identify three things that must be included in a word problem.
- Students work with partners to develop their own word problem and solve it.

Formative Assessment

The teacher may engage in any or all of the following activities to determine students' level of understanding.

- Observation of correct and incorrect answers at the board.
- Chart oral answers using a checklist.
- Monitor group discussions.

- Collect and check worksheet.
- Assess problem while students share their word problem with the class.

Summative Assessment

In the same small groups as constituted for the learning activities, students act out their word problem for the class. The audience (other students) try to solve the problem after watching it being performed.

Criterion Standard Rubric

- The student *calculated* answers to addition, subtraction, multiplication and division problems. YES or NO.
- The student *identified* what is being asked in a word problem. YES or NO.
- The student *named* three components of a word problem. YES or NO.
- The student *examined* information in a word problem to decide how to solve it. YES or NO.
- The student *developed* a word problem. YES or NO.

Measurement

Adapted from material developed by Kelly Hower

State Standard(s) to Be Assessed

- Understand the uses and nature of mathematics.
- Effectively use a variety of strategies in the problem-solving process.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

- The class reviews addition, subtraction, and that $^1/_2$ is equal to .5 from a previous chapter.
- The teacher poses questions to the class to get an understanding of students' knowledge of measurement.

Criterion Standards to Be Assessed

- Demonstrate the ability to add whole numbers and decimals.
- Demonstrate the ability to subtract whole numbers and decimals.
- Identify the appropriate instrument used for measuring an object.
- Demonstrate the ability to measure an object to the nearest inch.
- State the appropriate unit of measurement when labeling the correct answer.

Student Learning Activities

- In small groups, students measure a variety of items to the nearest half inch using a ruler and a yard stick.
- Students subtract the measure of one object from another and add the measure of one object to another as direct by the teacher. (Such direction can be in the form of a worksheet, overhead, or may be given verbally.)

Formative Assessment

- The teacher may monitor students' measuring.
- The teacher may monitor groups and review with its members what they found.
- The teacher may conference with each student as he or she finishes, taking notes on areas of difficulty for each student.
- The teacher may grade the worksheet as a quiz.

Summative Assessment

- In groups, students measure distance around their classroom, a bulletin board, a table, and a window.
- Each group rotates and measures all of the areas.
- Each group makes a diagram showing the shape of the object and the length of each side. They then add up the four sides and record the total.

- The students then illustrate how subtracting or adding to one side affects the appearance of the whole shape.

Criterion Standard Rubric

- The student *demonstrated* the ability to add whole numbers and decimals. (25 points)
- The student *demonstrated* the ability to subtract whole numbers and decimals. (25 points)
- The student *identified* the appropriate instrument used for measuring an object. (20 points)
- The student *demonstrated* the ability to measure an object to the nearest inch. (25 points)
- The student *stated* the appropriate unit of measurement. (5 points)

Quadrilaterals and Triangles

Adapted from material developed by Kelly Hower

State Standard to Be Assessed

- Understand and apply basic and advanced properties of the concept of geometry.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

- Students draw a three-sided figure.
- Students draw a four-sided figure.

Criterion Standards to Be Assessed

- Identify the number of sides a triangle has.
- Identify the number of sides a quadrilateral has.
- Define a right triangle.
- Define a scalene triangle.
- Define an isosceles triangle.
- Define a square.
- Define a rectangle.
- Define a parallelogram.
- Define a rhombus.
- Define a trapezoid.
- State the definition of an acute angle.
- State the definition of an obtuse angle.
- State the definition of a right angle.
- Create a diagram that identifies the eight figures above, include pictures of each, and label every angle.

Student Learning Activities

- Students use geoboards to construct geometric figures developed by a teacher or group leader.
- Students draw each of the figures by using Kid Pix on the computer. Each figure should be labeled.

Formative Assessment

- The teacher may monitor the students using the geoboards, using a checklist to keep track of their progress.
- The teacher may collect and assess printed out copies from the computer.

Summative Assessment

Pairs of students will construct a bridge out of paper triangles and quadrilaterals. Every pair of students will be given the same number of triangles and quadrilaterals. The figures may be folded but may not be cut to change the shape or size. Glue is the only material that may be used to hold the bridge together.

Criterion Standard Rubric

- The student *identified* the number of sides a triangle has. (10 points)
- The student *identified* the number of sides a quadrilateral has. (10 points)
- The student *defined* a right triangle. (5 points)
- The student *defined* a scalene triangle. (5 points)
- The student *defined* an isosceles triangle. (5 points)
- The student *defined* a square. (5 points)
- The student *defined* a rectangle. (5 points)
- The student *defined* a parallelogram. (5 points)
- The student *defined* a rhombus. (5 points)
- The student *defined* a trapezoid. (5 points)
- The student *stated* the definition of an acute angle. (10 points)
- The student *stated* the definition of an obtuse angle. (10 points)
- The student *stated* the definition of a right angle. (10 points)
- The student *created* a diagram that identifies the eight figures above, included pictures of each, and labeled every angle. (10 points)

Right Triangle Trigonometry

Adapted from material developed by Pauline Schreck

State Standard to Be Assessed

- Understand and apply basic and advanced properties of the concept of geometry.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

- Give students a sheet of paper and ask them to write what they know about a right triangle.

Criterion Standards to Be Assessed

- Define a right triangle.
- State the Pythagorean Theorem.
- Name the right triangle ratios using trigonometric functions.
- Employ the use of a drawing to show a right triangle with know parts labeled.
- Calculate the measures of unknown sides or angles in a right triangle when given the measure of one angle and one side or the measure of two sides.
- Calculate the solutions to word problems.
- Create real-world problems that will use a right triangle to solve them.

Student Learning Activities

- While in groups of three, students discuss what information they would need to know and how they would go about getting this information when they are asked to find the height of an object that they cannot physically measure.
- Students solve problems finding the unknown side measurement of right triangles.
- Students identify five different right triangles they encounter in their lives.

Formative Assessment

- The teacher may assess classroom work by using a checklist as the student works.
- The teacher may also want to give a quiz or test.

Summative Assessment

The students go outside the school and take measurements of eight predetermined objects. These eight objects should be tall enough that the students cannot physically measure them. Students work in groups of four using a tape measure and handmade transit. Using their measurements they calculate the height of each

object. Each student in the group does the calculations for two different objects. Each student hands in a paper with his or her calculations and the height of the object. The student writes a cohesive paragraph in sentence form on the procedure he or she used to find the height of the object.

Criterion Standard Rubric

- The student *defined* a right triangle.
- The student *stated* the Pythagorean Theorem.
- The student *named* the right triangle ratios using trigonometric functions.
- The student *employed* the use of a drawing to show a right triangle with know parts labeled.
- The student *calculated* the measures of unknown sides or angles in a right triangle when given the measure of one angle and one side or the measure of two sides.
- The student *calculated* the solutions to word problems.
- The student *created* real-world problems that use a right triangle to solve them.

Probability

Adapted from material developed by Pauline Schreck

State Standard(s) to Be Assessed

- Effectively use a variety of strategies in the problem-solving process.
- Understand and apply basic and advanced concepts of statistics and data analysis.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

- Each student is given one die.
- The students role the die and report what number came up to the teacher, who records it on the blackboard.
- The students examine the data to try realize a correlation or pattern in the data.

Criterion Standards to Be Assessed

- Define the formula for probability.
- Explain what an independent event is.
- Use an example to show an independent compound event.
- Calculate the probability of rolling a seven on two dice.
- Calculate the probability of rolling a two on one die and an odd number on the second die.

Student Learning Activities

- Each student numbers a paper from 1 to 40. For each number, the student randomly writes an A, B, C, or D on the paper across from the numbers.
- Then the students compare their "answers" to the teacher's answers. Probability states that their answers should match the teacher's ten times out of forty. This represents taking a multiple-choice test by guessing.
- Students do problems calculating simple independent probabilities.
- Students do problems calculating compound independent problems.

Formative Assessment

The teacher may assess the students' performance in any of the following ways:

- Assess classroom work by using a checklist as the student works.
- Assess the student's homework by using a rubric.
- Assess by giving a test or quiz.

Summative Assessment

Students pair up and are given two dice. Each pair chooses a number from two to twelve and calculates the probability of rolling the chosen number. One student

rolls the dice while the other student keeps tally of the results. The students change jobs half way through the project. After twenty-five rolls they stop and figure out the actual outcome. They continue to do this after fifty rolls, seventy-five rolls, and 100 rolls. They compose a well-developed paragraph that explains how the four results compare to each other and to the probability they found in the beginning.

Criterion Standard Rubric

- The student *defined* the formula for probability.
- The student *explained* what an independent event is.
- The student *used* an example to show an independent compound event.
- The student *calculated* the probability of rolling a seven on two dice.
- The student *calculated* the probability of rolling a two on one die and an odd number on the second die.

Measurement and Geometry

Adapted from material developed by Barbara McAndrew

State Standard to Be Assessed

- Understand and apply basic and advanced properties of the metric system.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

- List prefixes on the board (kilo, hecto, deka, deci, centi, milli). Ask what each term means. Generate lists of words containing these prefixes and discuss word meaning.
- Display around the room examples of assorted metric distances and have students identify.

Criterion Standards to Be Assessed

- State the meaning of each metric measurement prefix.
- Restate one metric measurement as another (i.e., 1 meter = 10 decimeters).
- Use appropriate tools and units of metric measurement to measure a variety of objects.
- Calculate the metric distance from the town in which the school is located to other locations.
- Create a "blueprint" of the school, including a scale.
- Appraise the consistency of the established metric map scale for each map.

Student Learning Activities

This learning activity spotlights particular intelligences and allows students to demonstrate their understanding in non-traditional ways.

- The students compose a song and dance to the metric hop (to address intelligence areas of music, verbal linguistic, and bodily kinesthetic in order to internalize metric prefix meaning).
- The students work with a color-coded metric ruler (visual-spacial).
- Using maps, the students calculate distances to various destinations (intrapersonal).
- The students develop a map scale for school map (logical-mathematical).

Formative Assessment

The teacher may:

- Observe and make notations on a checklist.
- Listen to a song and observe a dance.
- Give a quiz or test.

Summative Assessment

Using map scales from assorted maps, students calculate the actual metric distances from their town to a variety of different locations. Students measure a course on the school grounds, and "walk" to a place, such as Disney World.

Criterion Standard Rubric

- Student *stated* the meaning of each metric measurement prefix (centi-, deci-, milli-, etc.).
- Student *restated* one metric measurement as another (1 meter = 10 decimeters).
- Student *used* appropriate tool and unit of metric measurement to measure a variety of objects.
- Student *calculated* the metric distance from the town in which the school is located to other locations.
- Student *created* a "blueprint" of the school, including a scale.
- Student *appraised* the consistency of the established metric map scale for each map.

Addition and Subtraction of Whole Numbers and Decimals

Adapted from material developed by Barbara McAndrew

State Standard(s) to Be Assessed

- Understand the general nature and uses of math.
- Use a variety of strategies in the problem-solving process.
- Demonstrate competence in speaking and listening as tools for learning.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

- The students circles numbers (using colored pencils) indicating different place values.
- The students draw a box around decimal points.
- The students write a number stated by the teacher.
- The students read a written whole number.
- Given a number and specific place values, the student state which number it is closest to.

Criterion Standards to Be Assessed

- Identify the place value of a given whole number.
- Write (and read) a given whole number.
- Compare given sets of whole numbers.
- Construct a number line using a given set of whole numbers.
- Explain the mathematical rounding rule.
- Demonstrate the ability to round whole numbers.

Student Learning Activities

Number Envelope Activity

- For flexible grouping envelopes contain between five to ten numbers, ranging from zero to one thousand.
- Students compare this given set of numbers and order from smallest to largest.
- Students construct a number line (or hill) and place each given number on the line/hill.

Formative Assessment

Teachers may engage in any of the following assessment activities during the course of this lesson.

- Check on completed work.
- Observe.

- Examine number line/hill.
- Listen to song/rap.
- Give a quiz or test.

Summative Assessment

- In small groups, students compose a song or rap that explains the rules for rounding.
- Students perform their song for the rest of the class.
- The performances may be taped for later self- or peer evaluation.

Criterion Standard Rubric

- The student *identified* the place value of a given whole number. YES or NO.
- The student *wrote* (and read) a given whole number. YES or NO.
- The student *compared* given sets of whole numbers. YES or NO.
- The student *constructed* a number line using a given set of whole numbers. YES or NO.
- The student *explained* mathematical rounding rule. YES or NO.
- The student *demonstrated* the ability to round whole numbers. YES or NO.

Science

Popcorn Lab

Adapted from material developed by Chris Dent

State Standard(s) to Be Assessed

- Understand and apply basic and advanced concepts of statistics and data analysis.
- Understand the nature of scientific inquiry.
- Understand the science enterprise.
- Effectively use a variety of strategies in the problem-solving process.
- Demonstrate competence in the general skills and strategies of the writing process.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

- The class reviews the steps of the scientific method.
- Each student silently reads a short article or view a video on the composition of popcorn and the popping process.
- Each student summarizes the article as a class to determine what will take place in the experiment.
- Student attempts to predict the outcome of the experiment.
- Student does a pre-lab activity that includes reading through the directions step-by-step and demonstrating techniques and equipment. Student briefly explains the lab report format and details related to that report, demonstrating statistical analysis of the class results and performing the calculations the students will have to perform in their reports.

Criterion Standards to Be Assessed

- Assemble scientific findings in a clear, detailed report.
- Judge what background information is necessary to perform the experiment.
- State a hypothesis, as reason for doing the experiment, in a complete sentence.
- Explain in step-by-step detail how the experiment was performed.
- List five qualitative observations noticed during the lab.
- List in a table or chart all quantitative information gathered in the lab.
- Calculate the percent of water in each brand of popcorn.
- List five mistakes that affected the outcome of the experiment and tell how they affected the outcome.
- Analyze the class values to find the average water percent, average volume of popped corn, average number of unpopped kernels, and average deviation from the mean in each of those areas.

- Calculate the percent error of their experiments.
- Summarize the experiment in three conclusion statements.

Student Learning Activities

The students perform a lab experiment to find which product (brand name or generic popcorn) is better in three categories: percent of water each contains, volume of popped corn, and number of unpopped kernels.

Formative Assessment

- Monitor the experiment to check on individual steps.

Summative Assessment

The students write a lab report containing sections that model the scientific method and graphical representation of outcomes.

Criterion Standard Rubric

- The student *assembled* scientific findings in a clear, detailed report. YES or NO.
- The student *judged* what background information is necessary to perform the experiment. YES or NO.
- The student *stated* a hypothesis, as reason for doing the experiment, in a complete sentence. YES or NO.
- The student *explained* in step-by-step detail how the experiment was performed. YES or NO.
- The student *listed* five qualitative observations noticed during the lab. YES or NO.
- The student *listed* in a table or chart all quantitative information gathered in the lab. YES or NO.
- The student *calculated* the percent of water in each brand of popcorn. YES or NO.
- The student *listed* five mistakes that affected the outcome of the experiment and *explained* how they affected the outcome. YES or NO.
- The student *analyzed* the class values to find the average water percent, average volume of popped corn, average number of unpopped kernels, and average deviation from the mean in each of those areas. YES or NO.
- The student *calculated* the percent error of the experiments. YES or NO.
- The student *summarized* the experiment in three conclusion statements. YES or NO.

Chemical Formulas

Adapted from material developed by Chris Dent

State Standard to Be Assessed

- Understands the chemical formulas.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

- Check student knowledge of formula writing with a ten point quiz.
- Students randomly choose a compound name from a beaker and draw a picture of the ions that make up that compound, showing the placement of electrons within the ion, the movement of electrons between ions, and the charges of the ions.

Criterion Standards to Be Assessed

- Break down each of two compounds into four separate ions.
- Use the periodic table to identify the four ions by name and symbol.
- Write the charge of the four ions.
- Combine the names, symbols, and charges into two correct formulas.

Student Learning Activities

- Given a hypothetical list of results from the lab, the students determine the correct formula for a compound.
- The students perform the lab as a "practice run" using one unknown.

Formative Assessment

- In each of the two activities above, the students are asked questions by the teacher to make sure they were reading the results correctly and using the correct chemicals and techniques.
- Students have the opportunity to perform each activity until they are able to determine the correct formula of the compound.

Summative Assessment

Students perform a qualitative lab to determine the chemical make-up of an unknown compound.

Criterion Standard Rubric

- The student *broke down* each of two compounds into four separate ions.
- The students *used* the periodic table to identify the four ions by name and symbol.
- The student *wrote* the charge of the four ions.
- The student *combined* the names, symbols, and charges into two correct formulas.

Social Science

Individual Interest and Influence

Adapted from material developed by Michele Weir

State Standard(s) to Be Assessed

- Understand that culture and experience influence people's perceptions.
- Understand issues concerning the disparities between ideals and reality in American political and social life.
- Demonstrate competence in speaking and listening as tools for learning.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

The teacher begins with open-ended questions such as the following:

- What does the term "pursuit of happiness" as stated in the U.S. Declaration of Independence mean to you?
- What circumstances might affect a person's idea of happiness?
- In what ways can a government guarantee that its citizens are free to pursue what makes them happy?

Criterion Standards to Be Assessed

- Explain what factors brought about America's diverse population.
- Judge the difference between what was stated in the Declaration of Independence and the human condition prevalent at that time.
- Listen to and assess an argument put forth by another person.
- Compose and deliver a persuasive argument.

Student Learning Activities

- In small groups, students brainstorm those things without which they could not be happy.
- Each group presents its list of three things they "need" to be happy.
- From the list compiled from all of the groups, the class votes on the top three things.
- Before the vote is taken, each group presents an argument in favor of their three things and against others on the list.
- Each group makes a poster or other visual that depicts that class' top three things.

Formative Assessment

- The teacher monitors activity of the small groups, noting student contributions to discussion and participation.

- The teacher evaluates the quality of the posters according to criteria established and made known to the students before they start.

Summative Assessment

- The class is divided into three group that work as political action committees. Each is assigned a cause to promote.
- Each group "lobbies" appropriate government officials via e-mail and U.S. mail, faxes, and telephone calls on behalf of their cause. They will keep a log responses to their correspondence to see which method receives the most substantive response.

Criterion Standard Rubric

- The student *explained* what factors brought about America's diverse population. YES or NO.
- The student *judged* the difference between what was stated in the Declaration of Independence and the human condition prevalent at that time. YES or NO.
- The student *listened to* and *assessed* an argument put forth by another person. YES or NO.
- The student *composed* and *delivered* a persuasive argument. YES or NO.

Colonial Life

Adapted from material developed by Angie Marcinek

State Standard(s) to Be Assessed

- Demonstrate competence in the general skills and strategies of the writing process.
- Demonstrate competence in speaking and listening as tools for learning.
- Understand the historical perspective.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

The students brainstorm what they know about colonial life and place that information in a concept web graphic organizer.

Criterion Standards to Be Assessed

- Use appropriate software to develop a product.
- Examine the steps involved in playing a game of his or her own creation.
- Develop a learning tool (crossword puzzle and board game) that will enhance his or her understanding of a given topic (colonial life).
- Utilize prior knowledge (how to play a board game) to enhance current cognitive understanding (of colonial life).
- Determine materials needed to complete the project.
- State what he or she recalls about colonial life.

Student Learning Activities

Students are divided into six groups and assigned to create crossword puzzles and corresponding answer keys related to the following aspects of American colonial life:

- Group 1: Political
- Group 2: Economic
- Group 3: Religious
- Group 4: Social
- Group 5: Intellectual
- Group 6: Artistic

Formative Assessment

- Students complete the crossword puzzles from the other groups and are graded by members of the originating group. OR
- The teacher prepares a quiz of twenty questions. The information for the questions are taken from the crossword puzzle and index cards.

Summative Assessment

- Working in teams students of four, students construct a board game that deals with information learned about colonial life.
- The students write clear step-by-step directions for the game that include its educational aspects.
- All members of the team must participate in the construction.
- The final product must be creative, neat, and well organized.
- The students are allowed to use whatever materials necessary to complete the assignment; however, the material must be brought to school and the project assembled during class time.
- The group provides a cover sheet stating how each member participated.
- Students complete all written material using a word processor.

Criterion Standard Rubric

- The student *used* appropriate software to develop a product. YES or NO.
- The student *examined* the steps involved in playing a game of his or her own creation. YES or NO.
- The student *developed* a learning tool (crossword puzzle and board game) that enhanced his or her understanding of a given topic (colonial life). YES or NO.
- The student *utilized* prior knowledge (how to play a board game) to enhance current cognitive understanding (of colonial life). YES or NO.
- The student *determined* materials needed to complete the project. YES or NO.
- The student *stated* what he or she recalls about colonial life. YES or NO.

Chapter 6

Lesson Planning Takes Root

Teachers use what is expected of students (defined as criterion standards) as the root of the lesson plan. Once all state standards have been reduced to grade-level criterion standards in all subject areas, the result is a comprehensive district curriculum map (see Figure 6.1). This curriculum map can be read vertically to focus on subject-area responsibilities and horizontally to view grade-level responsibilities.

Several points are worth considering about the potential of the curricular map. First, even though these are called maps, they have no boundaries or distinct territories. Instead, curricular maps in general, and this map in particular, should be thought of as a tool to encourage interdisciplinary cooperation. A two-dimensional model cannot begin to depict the vertical and horizontal communication needed to optimize the utility of the completed volume of criterion standards. The model is presented for the sake of visually depicting how criterion standards have implications vertically and horizontally. The vertical slice depicted on Figure 6.1 focuses on the subject-area curriculum (K–12). The horizontal slice focuses on grade-level curriculum.

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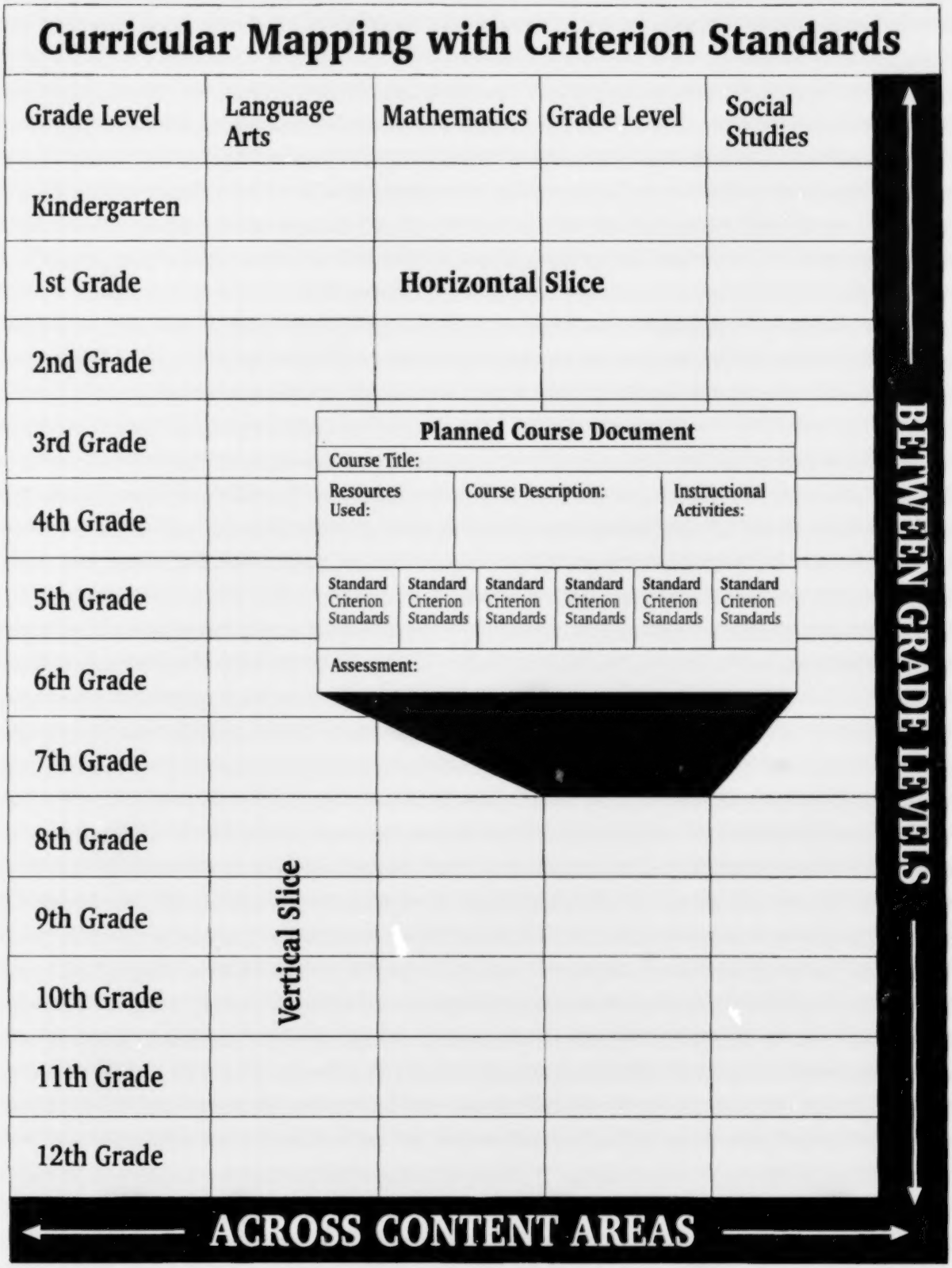

Figure 6.1

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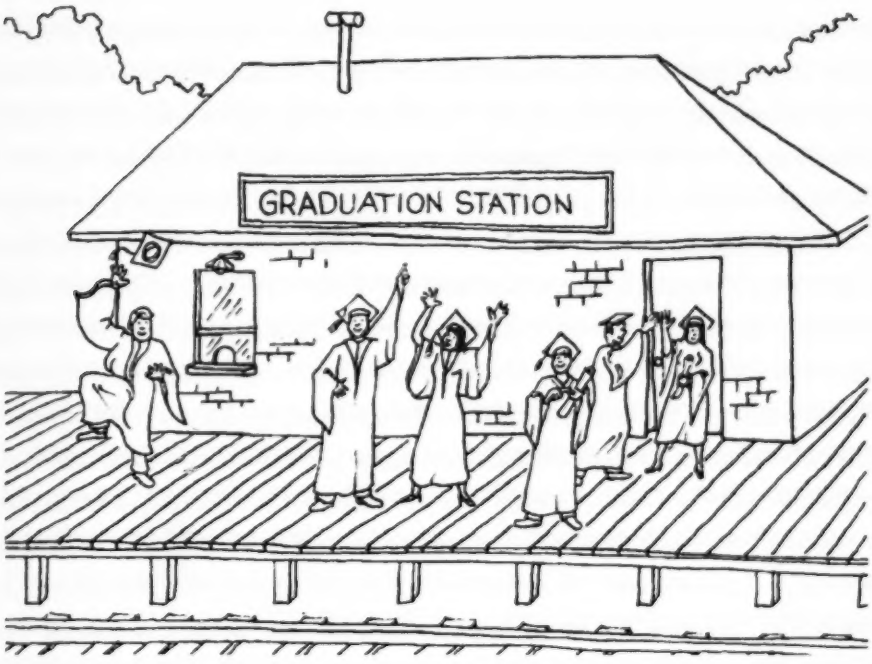
Implications for Supervision

As discussed in chapter 4, subject area supervisors or department chairpersons find it especially helpful to print out and examine the vertical perspective (between grade levels) of the curricular map that relates to their subject areas. Doing so makes it possible to supervise from the standpoint of subject area standards. Thus, supervisors and their teachers can continually fine tune their curriculum by filling in gaps, culling irrelevant material, and adding emergent concepts to their subject areas.

The horizontal perspective (across curriculum) from two or more subject areas can be compared by supervisors and teachers. They can identify areas of common concern. They can also discuss strengthening the application and reinforcement of their respective subjects through work in other disciplines. For instance, a high school tenth-grade staff member could sit down with their horizontal slice of this map and determine interdisciplinary units that most efficiently help students achieve the standards.



Integrating the Curriculum

Just as the awareness of the responsibility at each grade level for the achievement and focus on preparation for the next level promotes learning and optimizes instructional time, so does the interdisciplinary integration of these traditional subject areas. The criterion standards make it much easier to identify themes that cut across subject areas. For example, the

Civil War as a theme for instruction can carry through to a number of subject areas beyond its usual place in the social science curriculum. (For example, students may study literature produced during or about the Civil War, statistics and demographics, or the art and music of that historical period.) Each subject has criterion standards that can be processed through a Civil War theme. The horizontal communication process during the writing of criterion standards brings to light possible interdisciplinary relationships. In addition, the performance aspect of the criterion standards (signaled by a performance verb) encourages different subject-area teachers to collaborate on their instructional activities. Assessment tasks are excellent opportunities to integrate subjects when projects are used that require communication skills to be demonstrated while using knowledge of other subject areas to complete the task. (Such assessment tasks can also be instructional tasks, of course.)

Criterion standards require teachers to view curriculum from the perspective of what students know and can do and requires dialogue among colleagues to accomplish this. Therefore, teachers can see how they can integrate concepts, teach to standards, and prepare students for the state standards test. Discussion greatly increases the efficiency of instruction as teachers learn to eliminate duplication of efforts and actually begin to build on each other's accomplishments. Teachers see that students not only need to write across the curriculum; students must *learn* across the curriculum by meeting all standards in all subject areas.

The Planned Course Document

The primary reason for rendering curriculum into manageable pieces (criterion standards) is to guide daily instruction in the classroom. To spend numerous hours and dollars to produce a curriculum document that simply gathers dust on a shelf and/or satisfies state mandates is an extreme waste of resources. One method for making curriculum accessible and highly usable is the planned course document. The planned course is a condensed version of a year-long lesson plan. It comprises information about every aspect of the course, including resources used, a course description, instructional activities, state standards and the corresponding criterion standards, as well as an assessment plan. (See Figure 6.1 as the plan works in relation to curricular mapping and Figure 6.2 for a visual explanation of what such a document can look like.)

Figure 6.2 PLANNED COURSE DOCUMENT

PLANNED COURSE DOCUMENT

Course Title:

Resources Used	Course Description	Instructional Activities
A list of textbooks, periodicals, video materials, software programs, and Internet resources	A paragraph or two that describes the basic course that may be similar to what may be found in a curriculum guide	The list of instructional activities to be used (e.g., cooperative learning, project-based learning, lecture, or oral presentations)

Standard	Standard	Standard	Standard	Standard	Standard
Criterion	Criterion	Criterion	Criterion	Criterion	Criterion
Criterion	Criterion	Criterion	Criterion	Criterion	Criterion
Criterion	Criterion	Criterion	Criterion	Criterion	Criterion
Criterion	Criterion	Criterion	Criterion	Criterion	Criterion
Criterion	Criterion	Criterion	Criterion	Criterion	Criterion

Assessment: Narrative of the assessment possibilities for the course, the grading system, and an explanation of the grading system

Planned course documents produced using criterion standards should be used on a daily basis. Since the criterion statements are descriptions of what students must know and be able to do, the teacher has an activity and assessment plan for the year. Teachers should keep their criterion standards on their desks and refer to them frequently as they prepare their daily lessons.

Further, teachers can use planned course documents to communicate to students and parents about the content and objectives of their courses. They also make excellent handouts to all students at beginning of each course. Planned course documents using criterion standards as a plan for the year serve to keep teachers and students focused on the tasks at hand. They also guide assessment by communicating to students what they should be able to do as a result of a particular segment of instruction.

There are many aspects to the map model. There is a total curriculum map that represents a profile of the graduating student or the district-wide curriculum. There is the vertical slice that depicts the subject area responsibilities, and the horizontal slice that delineates grade-level responsibilities.

What Is in a Name?

Throughout the course of writing curriculum with criterion standards, teachers and administrators will no doubt be struck by the fact that this approach requires people to look at strands or concepts that run from kindergarten level to graduation. The reality is that much of what educators are asked to address does not fit into neat little subject packages (contrary to how courses and curriculum have been designed in the past). A lot of the disjointed nature of curriculum is due to the packaging of courses along traditional lines. Therefore, it may make sense to call courses Math K to Math 12 instead of calling them by more compartmentalized terms like *geometry*. This traditional packaging leads to territorial feelings on the part of teachers, and criterion standards can break down some of those territorial lines.

Developing the Standards-Based Instructional Plan

The purpose of using a criterion-based instructional plan is twofold. It gives the teacher a way of focusing on what students are supposed to know and be able to do and gives the teacher a way of documenting that standards are being utilized in the classroom. Lesson plans are related to planned course documents in that teachers craft lesson plans from them. One hundred eighty instructional plans (one for each of the average number of instructional days) can be derived from a planned course document.

Lesson plans based on criterion standards include the following:

- State Standard(s)—standards mandated by states and compiled by Kendall and Morzano (1996)
- Pre–Assessment—the gathering of information by the teacher about what students know and can do as they commence the study of a new unit or topic
- Criterion Standards—each statement defining one expectation that a student must know or be able to do in order to achieve a standard
- Student Learning Activities—the tasks or performances assigned to students so that they may evidence achievement of a criterion standard
- Formative Assessment—the gathering of information about a student's knowledge or use of a concept while the student is in the midst of exploring that concept
- Summative Assessment—the gathering of information about a student's ability to know or apply that concept after completing a unit of instruction

- Criteria Rubric—the tool from which a score or grade is determined (The student is made aware of the criteria before embarking on a performance task.)

It is clear that state education agencies are holding teachers accountable for student achievement of standards. Too often the results of state tests are the only evidence used to determine if a student has achieved the standards and by extension if the teachers have successfully taught them. The strategy of formulating criterion standards and daily lesson plans, planned courses, and district-wide curriculum around them are ways that teachers can prove that they teach to the standards. Through the use of criterion standards, a student's class work is predictive of his or her performance on the state test. Each lesson provides an opportunity for students to *show what they know,* or do not know, which in turn, gives the teacher a chance to fill in gaps in student understanding. Criterion standards tie state standards to classroom practice, creating a means for students to get on and stay on the right educational track.

Standards-Based Instructional Plan

Each part of the following lesson presented in Nova Scotia: Local Weather focuses on the standard—demonstrates competence in the general skills and strategies of the writing process while exploring other disciplines such as science and geography. The lesson is a strong example of the type of cross-content instruction so richly needed if all of the standards are to be addressed.

Nova Scotia: Local Weather

Adapted from material developed by Angie Marcinek

State Standard(s) to Be Assessed

State standards include the following:

- Demonstrate competence in the general skills and strategies of the writing process.
- Demonstrate competence in the general skills and strategies of the reading process.
- Understand the science enterprise.

Note: This lesson plan, like all of the others presented in this book, gives an example of how one lesson can be used in relation to particular standards. To

complete the standards over a K–12 education, a student would need to complete numerous lessons reflecting particular standards.

Pre-Assessment

Asking students to make lists of what they know about a certain subject cannot only help teachers uncover student knowledge, it can serve to remind students of what they already know and encourage them to approach the study of a new topic based on knowledge they already possess.

- Students list things they know about Nova Scotia and its climate.
- Students share their lists with the class.

Criterion Standards

The criterion standards below allow students to demonstrate understanding at different cognitive levels.

- List the main topics in a reading selection.
- Compose a paragraph on the main topics of a reading selection.
- Create a concrete poem based on a reading selection.
- Explain how fog is formed.

Student Learning Activities

The activities outlined here combine solid language arts skills with the hands-on experience of a science experiment.

- Students list five main topics on index cards after reading the story "Where the Wind Blows: Nova Scotia."
- Students arrange the topics in the order in which they appeared in the story.
- Students write a paragraph explaining the main topics after reading the story "Where the Wind Blows: Nova Scotia," making sure the paragraph includes a beginning, middle, and end, is in sequential order, and is accurate.
- Students type the paragraph with the word processor.
- Students create a concrete poem depicting the effects of weather in Nova Scotia.
- Students paraphrase the information in the supplemental reading "In a Fog" without losing its original meaning, making sure to double check that the information is expressed differently and that it explains how fog is formed.
- Students write the paraphrase in no fewer than six sentences.
- Students type the paraphrase using a word processor.

Formative Assessment

To gather information related to student understanding the teacher may assess the following:

- The paragraph for sequence, order, and accuracy.
- The poem to be sure it contains a concrete representation of weather in Nova Scotia.
- The paraphrase for original meaning, accuracy, and length.

Summative Assessment

This assessment uses science concepts to allow students to experience the fog they were reading about so that they can better understand and write more deeply about the subject.

- The teacher asks the students to work in teams of two to complete an experiment on fog.
- The students make observations that explain the effects of the materials used during the experiment.
- The students keep neat and well-organized records of the experiment.

Criterion Standard Rubric

Here the teacher can indicate whether or not the experiences in this lesson were or were not achieved by individual students.

- The student *listed* the main topics in a reading selection. YES or NO.
- The student *composed* a paragraph on the main topics in a reading selection. YES or NO.
- The student *created* a concrete poem based on a reading selection. YES or NO.
- The student *explained* how fog is formed based on the supplemental reading. YES or NO.
- The student *composed* a paragraph on the main topics in a reading selection. YES or NO.

Appendix A

Relevant Web Sites

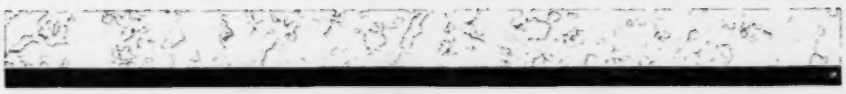
Developing Educational Standards *(http://putwest.boces.org/standard.html)* posted by the Putnam Valley Central Schools of New York offers an up-to-date view of each state's concern with standards. This site provides information from every state education agency in relation to the standards issue. By searching the links on the page, the searcher will see that many states have actually posted or made it possible to download the standards that they have constructed. Not only are all fifty states represented, there are also many other sites related to the standards issue. The site also offers links for six separate U.S. government pages directly related to educational standards, as well as links offering information on the standards movement in Canada. Along with the information on government-related standards development, the page offers sixteen links to centers, clearinghouses, and labs that offer academic information on standards. Other valuable sites that provide information on standards and curriculum include the following:

- American Federation of Teachers *www.aft.org/edissues/standards*
- *Education Week* on-line journal *www.edweek.org*
- Explore a Source *www.explorasource.com*
- Center for Educational Reform *http://edreform.com/standard.htm*
- Association for Supervision and Curriculum Development (ASCD) *http://www.ascd.org/* (A subscription to ASCD's ancillary site, "Only the Best Web Site," allows complete access to the most up-to-date version of the ASCD Curriculum Handbook.)

Appendix B

Verb Matrix

The Verb Matrix survey materials is presented here so that readers may use it to develop their own Verb Matrix at the local level.



Survey Question Used to Determine the Verb Matrix: *Know*

Below is the definition of *know* as stated in *Webster's New Collegiate Dictionary* (1973). Please read the definition carefully.

Know: To have direct cognition of information.

Please place a check beside the one word illustration that you think best fits what a student can do when the student *knows* something.

A student has direct cognition when the student . . .

____ 1. Can communicate information or complete a learning activity without reference to external sources.
____ 2. Can use memory as the only source to answer a question or complete the steps of a task.
____ 3. Can repeat information or complete steps of a process without the use of any resource other than his or her mind and body.
____ 4. None of the above statements is an acceptable illustration of the meaning of *know*.

If a student is expected to *know* something, which of the verbs below would best be used when asking the student to demonstrate that he or she *knows* the information or task process? Please circle the five verbs that you believe best illustrate the expectation to *know*.

Arrange	Identify	Offer	Repeat	Spell	Check	Label	Tell
Omit	Reset	Tally	Choose	List	Pick	Say	
Cite	Locate	Point to	Select	Touch	Find	Match	
Quote	Show	Transfer	Group	Name	Recite	Sort	
Underline	Hold	Write					

Survey Question Used to Determine the Verb Matrix: *Comprehend*

Below is the definition of *comprehend* as stated in *Webster's New Collegiate Dictionary* (1973). Please read the definition carefully.

Comprehend: To grasp the nature, significance, or meaning of information.

Please place a check beside the one word illustration that you think best fits what a student can do when the student *comprehends* something.

A student grasps the nature, significance, or meaning of information when the student . . .

____ 1. Can present information in his or her own words or illustrations.
____ 2. Can inform others of the information without repeating the information verbatim.
____ 3. Can re-create the information with a different set of words or other form of illustration.
____ 4. None of the above statements is an acceptable illustration of the meaning of *comprehend.*

If a student is expected to *comprehend* something, which of the verbs below would best be used when asking the student to demonstrate that he or she *comprehends* the information or task process? Please circle the five verbs that you believe best illustrate the expectation to *comprehend.*

Alter	Convert	Qualify	Retell	Translate	Change	Expand
Render	Reword	Vary	Construct	Moderate	Restate	Transform

Survey Question Used to Determine the Verb Matrix: *Interpret*

Below is the definition of *interpret* as stated in *Webster's New Collegiate Dictionary* (1973). Please read the definition carefully.

Interpret: To explain or tell the meaning of, in understandable terms.

Please place a check beside the one word illustration that you think best fits what a student can do when the student *interprets* something.

A student can explain or tell the meaning of information in understandable terms when the student . . .

____ 1. Can use his or her her own words to present the information.
____ 2. Can provide all the same information, but through other words or devices than those used by the original presenter.
____ 3. Can use his or her own words or illustrations to express the same message and the same value judgments as the original information.
____ 4. None of the above statements is an acceptable illustration of the meaning of *interpret*.

If a student is expected to *interpret* something, which of the verbs below would best be used when asking the student to demonstrate that he or she *interprets* the information or task process? Please circle the five verbs that you believe best illustrate the expectation to *interpret*.

Construe	Explain	Infer	Spell out	Annotate	Define
Expound	Outline	Account for			

Survey Question Used to Determine the Verb Matrix: *Apply*

Below is the definition of *apply* as stated in *Webster's New Collegiate Dictionary* (1973). Please read the definition carefully.

Apply: To put information to use, especially for practical purposes.

Please place a check beside the one word illustration that you think best fits what a student can do when the student *applies* something.

A student uses information when the student . . .

____ 1. Can utilize external information in the process of solving a problem or creating a concept.
____ 2. Can relate external information to a process from start to finish.
____ 3. Can rely on the external information to find answers to problems or create new ideas or products.
____ 4. None of the above statements is an acceptable illustration of the meaning of *apply*.

If a student is expected to *apply* something, which of the verbs below would best be used when asking the student to demonstrate that he or she *applies* the information or task process? Please circle the five verbs that you believe best illustrate the expectation to *apply*.

Adopt	Consume	Exercise	Handle	Mobilize	Avail	Devote
Exert	Operate	Wield	Employ	Make use of	Exploit	Ply
Put to use	Profit by	Try	Utilize	Put in action	Relate	
Take up	Use	Capitalize on	Manipulate	Solve		

Survey Question Used to Determine the Verb Matrix: *Analyze*

Below is the definition of *analyze* as stated in *Webster's New Collegiate Dictionary* (1973). Please read the definition carefully.

> **Analyze:** To study or determine the nature and relationship of the parts by separating the whole into its component parts.

Please place a check beside the one word illustration that you think best fits what a student can do when the student *analyzes* something.

A student studies or determines the nature and relationship of the parts of a piece of information when the student . . .

___ 1. Can separate the various details within a piece of information and can communicate how each detail relates to other details in order to form the piece of information.
___ 2. Can identify the respective parts and communicate how the parts relate to other parts in the context of the whole piece of information.
___ 3. Can communicate what each part is and can communicate how each part facilitates the message delivered by the whole piece of information.
___ 4. None of the above statements is an acceptable illustration of the meaning of *analyze*.

If a student is expected to *analyze* something, which of the verbs below would best be used when asking the student to demonstrate that he or she *analyzes* the information or task process? Please circle the five verbs that you believe best illustrate the expectation to *analyze*.

Assay	Deduce	Inspect	Search	Survey	Audit	Dissect
Look into	Section	Syllogize	Divide	Reason	Sift	Check
Take apart	Canvas	Examine	Screen	Simplify	Test for	
Include	Scrutinize	Study	Uncover	Breakdown		

Survey Question Used to Determine the Verb Matrix: *Synthesize*

Below is the definition of *synthesize* as stated in *Webster's New Collegiate Dictionary* (1973). Please read the definition carefully.

> **Synthesize:** To combine or produce through composing parts or elements so as to form a whole.

Please place a check beside the one word illustration that you think best fits what a student can do when the student *synthesizes* something.

A student produces a piece of information by combining parts and elements when the student . . .

____ 1. Can develop a piece of information by composing respective details into an entity with self-identity.
____ 2. Can create an idea by composing several parts and elements into one piece of information.
____ 3. Can combine new pieces of information with old pieces of information to form an original idea.
____ 4. None of the above statements is an acceptable illustration of the meaning of *synthesize*.

If a student is expected to *synthesize* something, which of the verbs below would best be used when asking the student to demonstrate that he or she synthesizes the information or task process? Please circle the five verbs that you believe best illustrate the expectation to *synthesize*.

Blend	Compile	Create	Formulate	Originate	Breed
Compose	Develop	Generate	Produce	Build	Conceive
Effect	Make	Reorder	Cause	Constitute	Evolve
Make up	Combine	Construct	Form	Mature	Structure
Yield	Reorganize				

Survey Question Used to Determine the Verb Matrix: *Evaluate*

Below is the definition of *evaluate* as stated in *Webster's New Collegiate Dictionary* (1973). Please read the definition carefully.

Evaluate: To determine or fix the value of something.

Please place a check beside the one word illustration that you think best fits what a student can do when the student *evaluates* something.

A student determines or fixes the value of something when the student . . .

____ 1. Can support his or her opinion with relevant information.
____ 2. Can communicate information that provides documentation for the value or significance of something.
____ 3. None of the above statements is an acceptable illustration of the meaning of *evaluate*.

If a student is expected to *evaluate* something, which of the verbs below would best be used when asking the student to demonstrate that he or she evaluates the information or task process? Please circle the five verbs that you believe best illustrate the expectation to *evaluate*.

Adjudge	Award	Decree	Rank	Settle	Appraise	Censure
Determine	Rate	Umpire	Arbitrate	Classify	Grade	Referee
Weigh	Assay	Criticize	Judge	Reject	Assess	Decide
Prioritize	Rule on					

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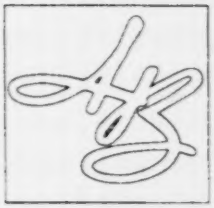
There are
one-story intellects,
two-story intellects, and three-story
intellects with skylights. All fact collectors, who
have no aim beyond their facts, are one-story men. Two-story men
compare, reason, generalize, using the labors of the fact collectors as
well as their own. Three-story men idealize, imagine,
predict—their best illumination comes from
above, through the skylight.

—Oliver Wendell
Holmes



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DANIEL M. PERNA, Ph.D.

Dr. Perna is the assistant superintendent and director of education for the Shikellamy School District and an educational consultant with a focus on educational standards. He has been involved in education for over 20 years as an English teacher, principal, athletic director, and coach.

JAMES R. DAVIS, Ph.D.

Dr. Davis is an educational consultant and field study advisor at NOVA Southeastern University. As an experienced educator, he has been a public school administrator, associate professor, high school principal, high school mathematics teacher, and an admissions counselor.

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800-348-4474 • 847-290-6600
Fax 847-290-6609
info@skylightedu.com
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